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Adolescent resilience following childhood maltreatment

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Doctorate in Clinical Psychology

University of Edinburgh

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Declaration of Own Work

I confirm that all this work is my own except where indicated, and that I have:

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- Not made undue use of essay(s) of any other student(s) either past or present (or where used, this has been referenced appropriately) ☒
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- I understand that any false claim for this work will be penalised in accordance with the University regulations ☒

Additionally, for SSR and Thesis submissions:

- Received ethical approval from the University of Edinburgh, School of Health ☒

OR

- Received ethical approval from an approved external body (e.g.NHS Research Ethics Committee) and registered this application and confirmation of approval with the University of Edinburgh's School of Health's Ethical Committee ☒

Signature

30/04/14

Date

Dedication

To S.P.

Hold fast to dreams
For if dreams die
Life is a broken-winged bird
That cannot fly.

Langston Hughes

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With thanks to my thesis supervisors Dr Penelope Noel, Professor Kevin Power and Dr Matthias Schwannauer for keeping me on the right track in turning my vague ideas into a fully-fledged doctoral research project.

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Thesis Abstract

Background: Previous research has demonstrated that a history of childhood maltreatment can lead to significant negative consequences across multiple domains of functioning. A significant minority of individuals remain resilient to such negative consequences, necessitating further research into the factors which protect against negative outcomes in young people who have experienced adversity. A systematic review of the literature was carried out in order to assess the evidence base for factors that predict adolescent resilience following childhood maltreatment. Several factors across the individual, family and community level were identified, however, evidence regarding these factors was mixed. Factors that have been shown to predict resilience in other age groups require further validation within adolescent samples.

Aim: The first aim of this study was to investigate the role of resilience in the relationship between childhood maltreatment and psychological distress. The second aim was to address a possible role for attachment in mediating the relationship between childhood maltreatment and resilience.

Method: Adolescents aged 13 – 17 who were attending Child and Adolescent Mental Health Services were asked to complete measures of childhood maltreatment, individual resilience, attachment and psychological distress.

Results: Resilience was shown to mediate the relationship between maltreatment and psychological distress. Attachment avoidance was found to mediate the relationship between maltreatment and resilience but not when emotional reactivity was included in the resilience index. Attachment anxiety did not mediate the relationship between maltreatment and resilience, however, maltreatment history was found to moderate the relationship between attachment anxiety and resilience.

Discussion: Generalisability of this study was limited due to possible bias within the recruited sample. Implications of the significant results are discussed along with suggestions for future research.

Chapter 1: Systematic Review ^{1 2}

1.1 Title Page

A systematic review of factors associated with adolescent resilience following childhood maltreatment

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¹ Produced according to submission guidelines of Child Abuse & Neglect (see Appendix 1 of thesis)

² Numbering of titles has been included in this review for continuity with the thesis but has not been included for submission. Tables are included within text as per instructions in the University of Edinburgh/ NHS (Scotland) Clinical Psychology Training Programme 3 year Full Time and Specialist Training Handbook but will be formatted for submission as per journal guidelines.

1.2 Abstract

Childhood maltreatment has been linked with a range of negative outcomes that persist across the lifespan, however, a significant minority of individuals remain resilient to these adverse effects. In order to support individuals to develop resilience following maltreatment, it would be beneficial to develop an understanding of the factors that might predict resilience across different domains of functioning. This review aims to systematically analyse the empirical literature investigating the factors that are associated with reduced or absent negative outcomes in adolescents with a history of childhood maltreatment. The databases MEDLINE, PsycINFO, ASSIA and EMBASE were systematically searched in addition to hand-searches of two related articles. In total nineteen articles met the inclusion criteria for review. Several possible factors were found to have been only assessed within a single paper. Those factors which had been researched within multiple studies tended to have mixed results. The strongest evidence was found for attitude toward school, extra-curricular activities, parent/caregiver support and peer support. Several factors require further validation, particularly those that have been shown to predict resilience in other age groups. Implications for future research are discussed.

Key Words: Child abuse, adolescent, resilience

1.3 Introduction

Childhood maltreatment, also referred to as child abuse and neglect, includes all forms of physical and emotional ill-treatment, sexual abuse and neglect that results in harm to the child's health and development. A survey by the National Society for the Prevention of Cruelty to Children (NSPCC) of over 6000 children and young adults in the United Kingdom found that one in four young adults had been severely maltreated during their childhood and around one in five children aged 11 – 17 had been severely maltreated (Radford, 2011). More recent statistics collated from the child protection registers across the United Kingdom suggested that approximately 50, 500 children in the United Kingdom were known to be at risk of abuse, as of March 2012 (www.nspcc.org.uk).

There is a great deal of evidence within the literature that a history of childhood maltreatment is a risk factor for adverse consequences across multiple domains of competence in both childhood and adulthood, including physical, behavioural, psychological and social functioning. With regard to the psychological consequences, individuals are at an increased risk for several mental health related difficulties, including general psychological distress, depression, anxiety and trauma symptomatology (Arnow, Blasey, Hunkeler, Lee & Hayward, 2011; Brown, Cohen, Johnson & Smailes, 1999; Kendall-Tackett, Williams & Finkelhor, 1993). Maltreatment history has also been linked to reduced academic performance (Mills *et al.*, 2011), increased physical health problems (Clark, Thatcher & Martin, 2010), increased suicidal behaviour (Bruffaerts *et al.*, 2010; Cutajar *et al.*, 2010), increased offending behaviour

(Topitzes, Mersky & Reynolds, 2011) and reduced quality of life (Jud, Landolt, Tatalias, Lach & Lips, 2012).

Despite this range of possible negative consequences, there is also evidence that a significant minority of children and young people with a history of abuse show resilience against these negative outcomes (McGloin & Widom, 2001; Walsh, Dawson & Mattingly, 2010). Information regarding these “resilient” individuals is hindered, however, by the level of heterogeneity within the conceptualisation and study of resilience. There is limited agreement with regard to how resilience should be measured (Herrnan *et al.*, 2011) and whether children are classified as resilient can vary significantly depending on the indicators that are used (Walsh, Davison & Mattingly, 2010). In general, resilience can be considered present when children show a normal range of competence across several domains of functioning, meaning that there are a range of outcomes upon which resilience could be measured (Walsh *et al.*, 2010). Resilience could be measured by considering social competence, average academic achievement, absence of psychopathology, behavioural competence or accomplishing stage-salient tasks and, indeed, all of these outcome indicators have been used within the extant literature (Cicchetti & Rogosch, 1997; Haskett, Nears, Sabourin Ward & McPherson, 2006; Jaffee, Caspi, Moffitt, Polo-Tomas & Taylor, 2007).

It is generally accepted that considering resilience across only one domain of functioning is unlikely to provide an accurate picture of an individual’s presentation. For example, it would not be accurate to describe a young person as being resilient when they do not have a diagnosis of depression if they are currently substance

dependant (McGloin & Widom, 2001). The importance of looking across domains in order to describe resilience has been raised several times within the literature (Kinard, 1998; Luthar, Cicchetti & Becker, 2000; Masten & Coatesworth, 1998), however, this has proven to be a challenge and not all studies within the field have achieved this (Heller, Larrieu, D'Imperio & Boris, 1999; Walsh *et al.*, 2010).

In understanding the concept of resilience, research must also bear in mind that resilience is a dynamic and interactional process. An individual's resilience to negative outcomes may change in response to different developmental task expectations and in response to the cumulative effects of risks and adversities over time. Resilient outcomes may also vary depending on the developmental stages at which adversity, risk and various protective factors arise in an individual's lifespan (Masten & Wright, 2010). Originally, resilience research tended to focus on identifying risk factors, such as poverty, family dysfunction and negative life events, which might inhibit resilience, however, latterly, research has begun to focus on the protective factors that promote the development of resilience (Elliot, Kalinski, Burrus & Roberts, 2013).

These protective factors can be considered to sit within three socio-ecological levels: individual, family and community. Early research initially considered resilience at the individual level (Luthar & Zigler, 1991; Walsh, 1996) but has since expanded to consider resilience in light of family level factors and the wider community context (Walsh, 2003). Given the differential importance of these three factors during childhood and adulthood, it is likely that associated resilience factors will vary across the age and stage of individuals being studied. For example, in adulthood a stable partner

relationship may play a role in promoting resilience (Collinshaw *et al.*, 2007; DuMont, Widom & Czaja, 2007), whereas in early childhood caregiver relationships may be more significant (Rosenthal, Feiring & Taska, 2003; Daigneault, Hebert & Tourigny, 2007). For this reason, it is necessary to consider the possible factors related to resilience across childhood, adolescence and adulthood in order to establish both differences and similarities in resilience outcomes across the lifespan.

This review aims to extend the current literature by considering the protective factors following childhood maltreatment that are most significant within adolescence.

Although resilience is more accurately captured using multiple rather than single domains, this review will include any relevant studies that only consider one domain, in order to provide a more comprehensive overview of the factors that may support improvements in resilience. This will also allow for a wider understanding of the quality of the current resilience literature, with regard to measuring and defining the construct and also in terms of the factors that influence functioning across different domains.

Discussion will then be made regarding the implications of the outcomes of this review for future research.

1.4 Methods

The methodology of this systematic review followed the guidance outlined by the Centre for Reviews and Dissemination (CRD), The University of York

(www.york.ac.uk/inst/crd/) (2009), which is part of the National Institute for Health

Research and produces internationally accepted guidelines for completing systematic reviews.

1.4.1 Inclusion and Exclusion Criteria

Studies were included where the research population fell within the adolescent age range. For the purpose of this study, this was defined as 12 to 18 years of age. Some studies included samples which ranged from middle childhood to adolescence or adolescence to young adulthood. Where this was the case, the study was included if the mean age of the sample fell within the adolescent range. Studies were required to have included a measurement or report of history of childhood maltreatment along with a measure of at least one resilience-related domain. Only research published in peer-reviewed journals was included and therefore research identified from dissertations, poster abstracts, conference presentations and book chapters was excluded. Due to limited access to translation services, only studies in the English language were included. As this review was interested in the factors that might predict resilience, studies that were solely qualitative in design were also excluded.

1.4.2 Literature Search strategy

The Cochrane Database of Abstracts of Reviews of Effects (DARE) was searched in order to confirm that a similar review had not been conducted recently. Following confirmation, a literature search was carried out in February 2014 using the following databases: EMBASE (1974 – February 2014), MEDLINE (1946 – February 2014), ASSIA (earliest – February 2014) and PsycINFO (1987 – February 2014). The search

terminology included all of the most common terms for childhood maltreatment and used key word searches within each database. This allowed for the repeated use of the same search string within each database, although consideration was made regarding other appropriate search terms within each database. The search terminology was as follows: (child* abuse OR child* sexual abuse OR child* emotional abuse OR child* physical abuse OR child* neglect) AND resilien*. Following further consideration, the literature search was repeated in July 2014 with the inclusion of an additional search term to the search terminology. The final search string was as follows: (child* maltreatment OR child* abuse OR child* sexual abuse OR child* emotional abuse OR child* physical abuse OR child* neglect) AND resilien*.

Alongside these searches, manual searches of the reference lists of two identified similar reviews (Afifi & MacMillan, 2011; Nasvytiene, Lasdauskas & Leonaviciene, 2012) were conducted. Twelve additional studies were identified by these means but only one was subsequently included in the review. The lead author of each included study was contacted by email in an effort to seek further relevant studies that might meet the criteria of the review.

1.4.3 Search Results

The review process involved several steps, as outlined in Figure 1. From the initial literature searches 1319 results were obtained (568 from PsycINFO; 312 from EMBASE; 274 from MEDLINE; 153 from ASSIA and 12 from other sources). The results of the literature search were exported to Refworks, a web-based citation

manager, for the purpose of screening. All duplicates were identified and removed, which left a total of 894 studies. The titles and abstracts of these studies were then screened to assess their relation to the inclusion and exclusion criteria, following which 59 studies remained. Following full text review, 40 further studies were excluded. After contacting relevant authors, five authors responded but only one suggested a further paper to be considered for inclusion. This paper was subsequently excluded from the review. The majority were excluded on the basis of the sample population (see Appendix 2 for further details). A total of 19 studies were thus subject to systematic review.

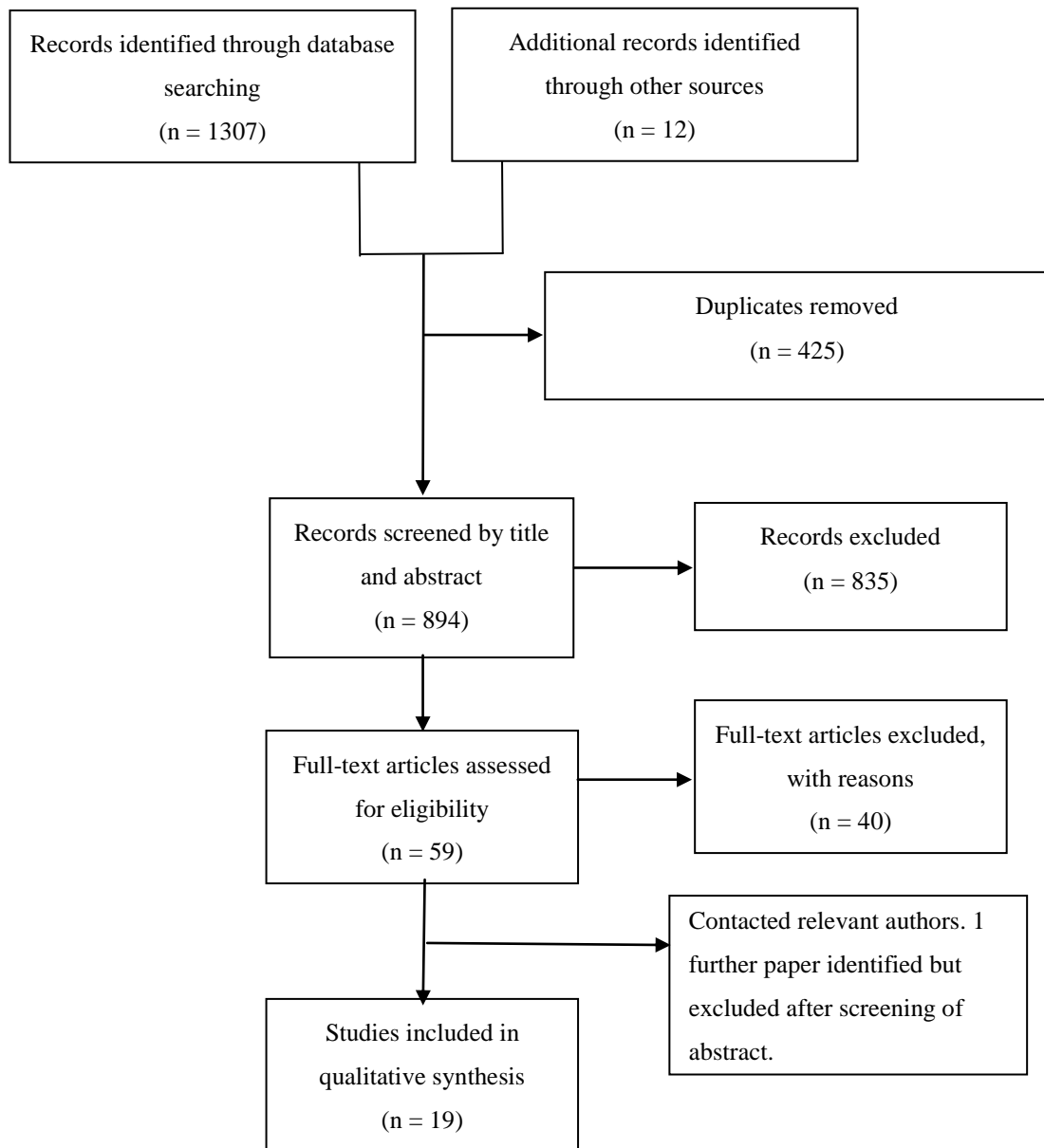


Figure 1: Flow chart of study selection process for systematic review.

1.4.4 Critical assessment of included studies

Studies were rated according to their quality with regard to addressing the aims of the current review. The CRD (2009) guidance states that while no single approach to assessing methodological quality may be appropriate to all systematic reviews, it is

likely that quality assessment will include: appropriateness of study design to the research objective; risk of bias; choice of outcome measure; statistical issues; quality of reporting; quality of the intervention and generalizability. The importance of each aspect will depend on the focus and nature of the review (CRD, 2009). For the purpose of this review, the following quality criteria were identified:

1. Is the study addressing a clear and focussed question? Are the aims and hypotheses clearly stated?
2. Is the study design appropriate for addressing the study question?
(longitudinal = 2, cross-sectional = 1)
3. Is the population being studied clearly described?
4. Is the recruitment procedure clearly described and appropriate?
5. Is there a sufficient response rate? (>70% = 2, >50% = 1)
6. Is the concept of resilience clearly defined and an appropriate measurement of resilience used?
7. Are the measures used valid and reliable for use with the study population?
8. Are potentially confounding variables accounted for?
9. Are the statistical analyses appropriate and p values, confidence intervals and effect sizes reported where appropriate?
10. Does the study have sufficient power? (A priori analysis required for score of 2)
11. Are the overall results clearly summarised and discussed?
12. Are generalisability, limitations and implications of the study findings clearly discussed?

Further details regarding the operationalization of these criteria are included in Appendix 3. For all 12 of these quality criteria, the studies were rated according to the

outcome ratings proposed by the Scottish Intercollegiate Guidelines Network (SIGN; 2011). These outcome ratings were as follows: 2 = well-covered, 1 = adequately addressed, 0 = poorly addressed/ not addressed/ not reported/ not applicable. This resulted in a maximum score of 28 for each study. This score was not intended to provide an overall judgement of the quality of the studies or to address all comparative strengths and limitations of the research but does provide a guide with regard to each study's relative methodological quality and robustness, with particular regard to their contribution to answering the questions of this review.

In order to ensure the reliability of the rating process, all of the studies identified for inclusion were second-rated by a clinical psychologist working with the author. There was an overall agreement of 74 per cent between the reviewers. The authors differed by one point in 60 ratings out of 228. There were no ratings where the authors differed by two points. Total overall quality scores for each study were all within two points of each other. All discrepancies in ratings were discussed and final scores were agreed by both reviewers.

1.5 Results

1.5.1 Study characteristics

An overview of study characteristics and brief summaries of the findings are presented in Table 1. The majority of the studies ($n = 13$) employed a cross-sectional design and the remaining 6 studies employed a longitudinal design. The majority of the studies were conducted in the United States of America, with one conducted in Canada, one in

Iceland, one across four European countries, one in Israel, and one in China. Sample sizes ranged from 43 – 9113 and ages ranged from 6 – 21.

Six studies looked solely at adolescents with a history of sexual abuse, three looked solely at adolescents with a history of physical abuse, one considered exposure to family violence and the remaining nine studies considered adolescents with a range of maltreatment histories. The majority of the studies recruited both male and female participants, with two looking solely at female participants. Thirteen of the included studies assessed resilience using multiple indicators, though several of these considered subcategories within one domain of functioning rather than considering resilience across multiple domains. The indicators that were identified were variable, with a range of different measures used to assess resilience, however, reduced/ absent psychopathology or reduced/ absent internalising and externalising behaviours were the most commonly measured outcomes. In order to assess the factors which predict resilience, fifteen of the studies used regression analyses, two used structural equation modelling, one used discriminant function analysis and one did not use any statistical analyses.

Table 1: Characteristics of included studies

	<i>Authors</i>	<i>Year</i>	<i>Country</i>	<i>Study Design</i>	<i>Maltreatment Type</i>	<i>N (N maltreated)</i>	<i>Age (Mean) Gender Ratio F:M</i>	<i>Assessment of Resilience</i>
1	Asgeirsdottir, Gudjonsson Sigurdsson, Sigfusdottir	2010	Iceland	Cross-sectional	Sexual abuse	9113 (NR)	16 – 19 (17.2) 51:49	Low or absent depression and anger.
2	Dang	2014	America	Cross-sectional	Physical and Sexual abuse	150 (150)	14 – 21 (18) 57:43	Low levels of psychological distress.
3	Edmond, Auslander & Bowland	2006	America	Cross-sectional	Sexual abuse (at least half of sample also reported emotional abuse and physical abuse)	99 (99)	15-18 (16.33) 100:0	Absence of pathology and maladaptive behaviour.
4	Guibord, Bell, Romano & Rouillard	2011	Canada	Cross-sectional	Any abuse or neglect	122 (122)	12 – 15 (13.75) 46:54	Fewer depressive symptoms; less substance use.
5	Herrenkohl, Herrenkohl & Egolf	1994	America	Longitudinal	Any abuse or neglect	345 (191)	15 – 21 (NR) NR	High cognitive/ academic, social and emotional functioning. Low physical problems.
6	Herrenkohl, Tajima, Whitney & Huang	2005	America	Longitudinal	Physical abuse	457 (176)	15 – 21 (18) 45:55	Reduced or absent anti-social behaviour: violence, delinquency or status offences.
7	Kassis, Artz, Scambor & Moldenhauer	2013	Austria, Germany, Slovenia and Spain	Cross-sectional	Exposure to family violence	5149 (1644)	8 th grade (14.4) 47:53	Absence of physical aggression and depressive symptoms
8	Lansford <i>et al.</i>	2006	America	Longitudinal	Physical abuse	585 (69)	8 th grade (NR) 48:52	Low or absent internalising and externalising behaviours.
9	Leon, Ragsdale, Miller & Spacarelli	2007	America	Longitudinal	Physical and Sexual abuse	142 (42)	10-17 (13.2) 27:73	Reduced trauma symptomatology

10	Oshri, Rogosch & Cicchetti	2013	America	Longitudinal	Any abuse or neglect	400 (242)	15 – 18 (NR) 41:59	Reduced internalising and externalising problems. Reduced substance misuse.
11	Perkins & Jones	2004	America	Cross-sectional	Physical abuse	16313 (3281)	12-17 (NR) 53:47	Reduced engagement in multiple risk behaviours
12	Pharris, Resnick & Blum	1997	America	Cross sectional	Sexual abuse	13923 (1157)	7 th – 12 th grade (NR) 51:49	Absence of hopelessness and suicidality
13	Rajendran & Videka	2007	America	Cross sectional	Any abuse or neglect	816 (816)	11 – 15 (NR) 58:42	Latent variable, not directly assessed
14	Rosenthal, Feiring & Taska	2003	America	Longitudinal	Sexual abuse	147 (147)	9 - 16 (NR) 73:27	Higher self-esteem, lower depression and trauma symptomatology
15	Sagy & Dotan	2001	Israel	Cross-sectional	Physical and verbal maltreatment and emotional neglect	226 (81)	8 th Grade (NR) 58:42	Perceived competence and reduced psychological distress
16	Schelble, Franks & Miller	2010	America	Cross-sectional	Any form of maltreatment	158 (158)	6 – 18 (13.44) 39:61	Improved academic performance.
17	Spaccarelli & Kim	1995	America	Cross sectional	Sexual abuse	43 (43)	10 – 17 (median: 14) 100:0	Absence of clinical symptomatology. Social competence.
18	Williams & Nelson-Gardell	2012	America	Cross sectional	Sexual abuse	237 (237)	11 – 16 (NR) 80:20	Absence of psychological symptoms.
19	Wong <i>et al.</i>	2009	China	Cross-sectional	Psychological aggression, physical maltreatment.	6593 (5208)	12 – 16 (14.2) 50:50	Improved physical health and no suicidal ideation.

1.5.2 Quality of included studies

As previously stated, the majority of studies were cross-sectional, which resulted in thirteen studies only receiving an adequate rating for this criterion. All of the studies provided a good or fair description of their aims and hypotheses and of their research population. Eighteen of the studies provided a good or adequate description of their recruitment method but only ten reported an adequate response rate. All but one study clearly defined resilience and chose an appropriate measure. Seventeen studies were given at least a fair rating with regard to the use of valid and reliable measures.

Thirteen studies received a good or fair rating with regard to accounting for confounding variables in their study. With regard to choice of analysis, the only study which received a score of 0 was one which had not statistically analysed the presented data. Only one of the studies reported an *a priori* power analysis, however, five of further studies had a sample size greater than 1000, which would provide sufficient power for regression analyses even with a small effect size. Of the other studies, one was found not to have sufficient post-hoc power and was accordingly given a rating of 0.

With regard to interpretation, all nineteen papers gave an adequate report of their findings and related these to the original research aim but only seventeen adequately addressed the generalizability, limitations and implications within their discussion.

Overall, seventeen of the nineteen studies received a quality score of at least 50% (12 out of 24), while eight studies received a score of at least 70% (18 out of 24). The average score was 15.79 (66%). Of the two studies that received a score below 50%, indicating poor methodological quality, Rajendran & Videka's (2007) study received lower scores due to the brevity of the paper, meaning that details of the study were not well described. The information that is provided appears to suggest that the study is more statistically acceptable than the quality score provided here would suggest, however, this was not necessarily of benefit for the purposes of this review.

Table 2: Quality ratings for each identified study

Study	Quality Criteria												Total Score
	1	2	3	4	5	6	7	8	9	10	11	12	
Asgeirsdottir <i>et al.</i> 2010	2	1	2	2	2	1	1	2	2	1	2	2	20
Dang 2014	1	1	2	2	0	1	2	2	1	1	1	2	16
Edmond <i>et al.</i> 2006	2	1	2	1	0	2	2	1	1	1	2	2	17
Guibard <i>et al.</i> 2011	2	1	2	1	0	2	1	1	2	2	2	2	18
Herrenkohl <i>et al.</i> 2005	2	2	2	2	0	1	1	2	2	1	2	1	18
Herrenkohl <i>et al.</i> 1994	1	0	1	1	0	1	0	0	0	0	1	0	5
Kassis <i>et al.</i> 2013	1	1	2	2	2	2	1	1	2	1	2	2	19
Lansford <i>et al.</i> 2006	1	2	2	2	1	1	1	1	1	1	2	2	17
Leon <i>et al.</i> 2007	1	2	2	2	2	1	1	2	1	1	2	1	18
Oshri <i>et al.</i> 2013	2	2	2	2	0	1	2	1	2	1	2	2	19
Perkins & Jones 2004	2	1	2	1	2	1	1	0	1	1	2	1	15
Pharris <i>et al.</i> 1997	1	1	2	1	2	1	0	0	1	1	1	1	12

Rajendran & Videka 2007	1	1	1	0	0	0	1	0	1	1	1	0	7
Rosenthal <i>et al.</i> 2003	1	2	2	2	2	1	2	1	1	1	2	1	18
Sagy & Dotan 2001	2	1	2	1	0	2	2	1	1	1	2	1	16
Schelble <i>et al.</i> 2010	1	1	1	1	1	2	1	1	1	1	2	1	14
Spaccarelli & Kim 1995	2	1	2	2	0	2	2	0	1	0	2	1	15
Williams & Nelson-Gardell 2012	2	1	2	2	2	2	1	0	2	1	2	2	19
Wong <i>et al.</i> 2009	2	1	2	2	2	1	1	1	1	1	2	1	17

1.5.3 Factors associated with resilience

The included studies addressed a wide range of factors associated with resilience across the individual, family and community socio-ecological levels (see Table 3). At the individual level, the wide range of possible factors means that many factors have only been studied within one paper, making the supporting evidence limited. There was a greater deal of agreement within the studies as to the family and community level factors, resulting in a stronger evidence base regarding their influence on resilience.

Table 3: Summary of investigated factors in all included studies

Level	Factors Investigated	Relevant study by overall quality rating		
		Good	Adequate	Poor
Individual	Academic performance	Guibord <i>et al.</i> , 2011	Pharris <i>et al.</i> 1997	Rajendran & Videka 2007
	Attitude toward school	Asgeirsdottir <i>et al.</i> 2010; Herrenkohl <i>et al.</i> 2005; Williams & Nelson-Gardell 2012	Edmond <i>et al.</i> 2006; Pharris <i>et al.</i> 1997; Sagy & Dotan 2001	
	Aggression-related attitudes/beliefs	Kassis <i>et al.</i> 2013		

	Cognitive appraisals		Spaccarelli & Kim 1995	
	Coping strategies	Guibord <i>et al.</i> , 2011	Spaccarelli & Kim 1995	
	Ego resiliency and ego control	Oshri, Rogosch & Cicchetti 2012		
	Emotion regulation		Schelble <i>et al.</i> 2010	
	Five factor personality traits	Oshri, Rogosch & Cicchetti 2012		
	Future orientation/ Hope for future	Herrenkohl <i>et al.</i> 2005; Williams & Nelson-Gardell 2012	Edmond <i>et al.</i> 2006; Perkins & Jones 2004	
	Hopefulness	Guibard <i>et al.</i> , 2011		
	Hostile attributions		Lansford <i>et al.</i> 2006	
	Intelligence	Williams & Nelson-Gardell 2012		Herrenkohl <i>et al.</i> 1994
	Life satisfaction		Wong <i>et al.</i> 2009	
	Self-esteem	Asgeirsdottir <i>et al.</i> 2010	Dang, 2014 Wong <i>et al.</i> 2009	
	Self concept	Kassis <i>et al.</i> 2013		
	Social competence	Leon <i>et al.</i> 2007	Lansford <i>et al.</i> 2006	Rajendran & Videka 2007
Family	Caregiver parenting/ monitoring	Guibord <i>et al.</i> , 2011		
	Parent/ Caregiver Support	Asgeirsdottir <i>et al.</i> 2010; Guibord <i>et al.</i> , 2011; Kassis <i>et al.</i> 2013; Leon <i>et al.</i> 2007; Rosenthal <i>et al.</i> 2003; Williams & Nelson-Gardell 2012	Dang, 2014 Lansford <i>et al.</i> 2006; Pharris <i>et al.</i> 1997; Spaccarelli & Kim 1995	Herrenkohl <i>et al.</i> 1994; Rajendran & Videka 2007

	Parental expectations		Pharris <i>et al.</i> 1997	Herrenkohl <i>et al.</i> 1994
	Family attention		Pharris <i>et al.</i> 1997	
	Family support		Edmond <i>et al.</i> 2006; Perkins & Jones 2004; Sagy & Dotan 2001*; Wong <i>et al.</i> 2009*	
	Family coherence		Sagy & Dotan 2001	
	Absence of physical abuse			Herrenkohl <i>et al.</i> 1994
	Placement stability		Schelble <i>et al.</i> 2010	
Community	Caseworker agency support	Leon <i>et al.</i> 2007		
	Extra-curricular activity involvement	Asgeirsdottir <i>et al.</i> 2010; Guibord <i>et al.</i> , 2011; Leon <i>et al.</i> 2007	Perkins & Jones 2004	
	School support	Kassis <i>et al.</i> 2013	Dang, 2014; Perkins & Jones 2004; Pharris <i>et al.</i> 1997	
	Other adult support		Perkins & Jones 2004; Sagy & Dotan 2001*	
	Peer support/peer characteristics	Guibord <i>et al.</i> , 2011; Rosenthal <i>et al.</i> 2003; Williams & Nelson-Gardell 2012	Dang, 2014; Edmond <i>et al.</i> 2006; Perkins & Jones 2004; Sagy & Dotan 2001*; Wong <i>et al.</i> 2009*	
	Religiosity	Herrenkohl <i>et al.</i> 2005	Edmond <i>et al.</i> 2006; Perkins & Jones 2004; Pharris <i>et al.</i> 1997	

1.5.3.1 Individual characteristics

The most well researched individual level factors were attitude toward school and future orientation, each having been addressed in at least four included studies. Academic performance, self-esteem and social competence were also well researched, having been included in three of the identified studies.

Three studies established a significant relationship between school attitudes and psychopathology (Asgeirsdottir *et al.*, 2010; Pharris *et al.*, 1997; Williams & Nelson-Gardell, 2012). Two of these studies received high quality ratings and demonstrated good methodological quality. This indicates a strong evidence base with regard to school attitudes. These results are supported by three further studies that considered other resilience domains. Herrenkohl *et al.* (2005) reported significant effects of commitment to school on violence, delinquency and status offenses. Edmond *et al.* (2006) found that certainty of school plans predicted improved mental health, as measured by both internalising and externalising behaviour, while Sagy & Dotan (2001) reported a sense of school membership to be a significant predictor of perceived competence. The latter two of these studies were of moderate quality, while Herrenkohl *et al.* (2005) received a good overall quality rating. The main limitation of each of these studies related to study response rate, with all three receiving a poor rating on this criteria.

With regard to future orientation, results have been mixed. Of the highest rated studies, Williams and Nelson-Gardell (2012) found no significant effect of future orientation on

psychopathology and these results were supported by Edmond *et al.* (2006), a study of moderate quality. Herrenkohl *et al.* (2005) reported that future orientation failed to predict violence or status offences, but did predict delinquency, indicating a limited effect of future orientation on resilience. Perkins & Jones (2004) found that a positive view of the future was associated with decreased likelihood of engaging in suicide however, it was also found to be associated with increased sexual activity. This study was of moderate quality, and had a large, representative sample, but it was limited with regard to controlling for possible confounding variables.

The highest rated study which considered the role of academic performance was Guibard *et al.* (2011), who did not find a significant correlation between academic performance and either depression or substance misuse, so did not include this factor in subsequent regression analyses. Pharris *et al.* (1997) found doing well in school to correlate with reduced suicidal ideation and suicide attempts in male adolescents and reduced suicidal ideation in females, however, this study had particular limitations with regard to the psychometric properties of their measures and with regard to controlling for confounding variables. Rajendran & Videka (2006) found academic achievement to significantly correlate with a latent resilience variable but this study had a poor overall quality rating.

With regard to self-esteem, Asgeirsdottir *et al.* (2010) found a significant effect of self-esteem on both depression and anger. Mediation analysis also suggested that the buffering effects of parental support and attitudes toward school were partially explained by their role in improving global self-esteem. Dang (2014), a study of

moderate quality, also found self-esteem to be a significant predictor of reduced psychological distress. It was the only factor which remained significant when all of the variables of interest were included in their regression analysis. On the other hand, Wong (2009) found that self-esteem was not a significant predictor of reduced physical symptoms or suicidality in physically abused adolescents. Wong *et al.* (2009) received a moderate quality score, with no particular limitations in their study, however, it is worth noting that this research was carried out with a Chinese sample. The differing results of these studies may indicate a possible cultural difference for this factor.

Regarding social competence, Leon *et al.* (2008) found no significant effect of social competence on negative affect or sexually ruminative thoughts and Lansford *et al.* (2006) did not find a significant effect of social competence for either externalising or internalising behaviours. Both of these studies received either fair or good ratings on all quality criteria, suggesting a relatively robust finding. In contrast with these results, Rajendran & Videka (2006) reported that social competence was significantly correlated with the latent variable of resilience in a structural equation model, however, as noted previously, this study received poor quality ratings due to the limited information reported regarding study design and methodology.

1.5.3.2 Family relationships

The most well-evidenced factors within the family were parent/caregiver support (n = 11) and general family support (n = 5), although, two of the studies considered to address family support utilised a general measure of social support, which means it is not possible to separate the influence of family support and that of other individuals.

The research with regard to parent/ caregiver support has had mixed results. Of the studies with the highest quality ratings, Asgeirsdottir *et al.* (2010) reported weak but significant effects for parental support on depressed mood but not on anger. Guibard *et al.* (2011) reported a significant effect of the relationship with a female caregiver with stronger relationships predicting reduced depressive symptoms. No significant effect was found for the strength of relationship with a male caregiver. Leon *et al.* (2008) found positive parenting practices to predict reduced negative affect but not sexually ruminative thoughts. Rosenthal *et al.* (2003) found that satisfaction with caregiver support at time of abuse discovery was associated with less depression, better self-esteem, fewer internalising and externalising behaviours, but more sexual anxiety. Kassis *et al.* (2013) found that higher levels of talking to parents and friends about violence predicted reduced depression and violent behaviour. Williams & Nelson-Gardell (2012) did not find the quality of the relationship with the caregiver to be a significant predictor of reduced distress. In addition to this, four studies with moderate ratings reported significant results of parental support. Dang (2014) reported that family connectedness, as measured by relationship with parents in particular, was a significant predictor of reduced psychological distress. Lansford *et al.* (2009) found a significant interaction with abuse for unilateral parental decision making with regard to externalising behaviour. Pharris *et al.* (1997) found parental caring to protect against suicidal ideation and suicide attempts in female adolescents but not males. Spaccarelli & Kim (1995) found parental support to be significantly associated with absence of clinical symptomatology and maintenance of social competence. Both of the latter two studies have a particular limitation with regard to controlling for confounding variables.

On the other hand, Dang (2014) received adequate or good ratings on all criteria except response rate, which was not reported, while Lansford *et al.* (2009) received adequate or good ratings on all criteria. The final study to consider caregiver relationships was Rajendran & Videka (2006), who found closeness to a caregiver to significantly correlate with the latent variable of resilience in a structural equation model.

Considering the role of the wider family network, all of the studies that considered this factor received moderate quality ratings. Edmond (2006) initially considered the role of family support, however, found no significant difference for this factor between their resilient and non-resilient samples so did not include it in further analyses. It is worth noting, however, that this study addressed resilience factors in girls in the foster care system, for whom family support may not be as easily accessed. Perkins & Jones (2004) reported significant protective effects of family support on tobacco and alcohol use, suicidality and purging. Pharris *et al.* (1997) found family caring to protect against hopelessness and suicidal ideation in females and suicide attempts in males. Wong *et al.* (2009) reported a significant relationship between social support and reduced physical symptoms, however, this measurement did not isolate the different kinds of social support that were identified. On the other hand, Sagy & Dotan (2001) also used a general measure and did not find a significant correlation between this factor and their two dependent variables so did not assess it further.

1.5.3.3 Community factors

The most well researched community factor was peer support/ peer characteristics, which was addressed by eight of the studies, although two of these were considering

general social support, which may include both family and other adult support depending on the individual. Religiosity, extra-curricular activities and school support were considered within four of the studies and other adult support was considered by three of the studies.

Of the best quality studies, Guibord *et al.* (2011) did not find friendships to be a significant predictor of reduced depression and Williams & Nelson-Gardell (2012) did not find quality of peer relationships to be a significant predictor of reduced distress. Rosenthal *et al.* (2003) found that more satisfaction with support from same or other sex friends at time of abuse discovery was associated with more depression and lower self-esteem but less sexual anxiety one year later, suggesting that peer support may predict some domains of resilience but not others. Of those that received moderate quality ratings, Dang (2014) found that affiliation with pro-social peers predicted reduced psychological distress and Perkins & Jones (2004) reported that positive peer group characteristics were a significant predictor for reduced substance use, sexual activity, antisocial behaviour, suicide and purging. Peer group characteristics were also found to predict school success and helping others. Edmond *et al.* (2006) also found that negative peer behaviour was a significant negative predictor of resilience to psychopathology. As previously mentioned, Wong *et al.* (2009) reported social support to be a significant predictor of resilience to physical problems, but did not identify which forms of social support were considered most relevant within their sample.

Two studies found a significant association between religiosity and resilience factors (Herrenkohl *et al.*, 2005; Perkins & Jones, 2004) while Pharris *et al.* (1997) found that

religiosity was correlated with reduced hopelessness in female adolescents but did not significantly predict reduced hopelessness. Edmond *et al.* (2006) did not find a significant difference in religiosity between their resilient and non-resilient samples so did not carry out further analysis regarding religiosity. All of these studies received moderate quality ratings, except Herrenkohl *et al.* (2005) who received a good rating overall.

With regard to extra-curricular activities, Asgeirsdottir *et al.* (2010) considered sport participation and reported only a weak effect on depressed mood and no effect on anger. Guibord *et al.* (2011) reported that increased extra-curricular activities reduced the chance of experiencing depression or substance misuse. Leon *et al.* (2006) found a significant interaction between club membership and sexual abuse severity whereby lower sexual rumination scores were only found for individuals who attended clubs but had less severe sexual abuse histories, suggesting that club involvement was only protective at lower levels of abuse severity. Perkins & Jones (2004), a moderately rated study, found that involvement in extra-curricular activities predicted a reduction in tobacco use, antisocial behaviour and purging and an increase in school success and helping others.

The highest quality study that considered school support was Kassis *et al.* (2013), who did not find a significant effect of teacher support or school acceptance on depression or violent behaviour. On the other hand, a positive school climate was found by Perkins & Jones (2004) to significantly predict reduced risk of substance misuse, sexual activity, anti-social behaviour and suicidality and increased likelihood of school success. Dang

(2014) reported that school connectedness predicted reduced psychological distress in their sample of homeless adolescents. Pharris *et al.* (1997) found that school support protected against suicidal ideation in male adolescents, though not females.

Only two studies considered the support of other adults outside of the family, Perkins & Jones (2004) found this factor to be associated with an increased risk of engaging in risk behaviours, however, Pharris *et al.* (1997) found other adult caring to protect against hopelessness and suicidal ideation in female adolescents and against suicidal ideation in males.

1.6 Discussion

The purpose of this review was to establish the evidence base regarding factors that are related to resilience in adolescence following childhood maltreatment. The results indicate that the research in this field is of good to moderate quality overall, with the majority of studies receiving good or fair scores across each quality criteria. Within these studies, there are several factors which have been considered across the individual, family and community levels. Many of these factors have been researched in multiple studies, however, several lack replication, particularly those at the individual level. Where factors had been considered in multiple studies, the results were often inconsistent, suggesting that further clarification is required with regard to the impact of these factors on different resilience related outcomes.

At the individual level, the strongest supporting evidence is for the factor of attitude to school. There was also adequate evidence to suggest that there was no effect of social competence on internalising and externalising behaviours or on negative affect. The results for future orientation and self-esteem were both mixed, with evidence suggesting that these factors might promote resilience to some outcomes but not others. There are some individual factors which may be significant but currently lack supporting evidence within the adolescent age range. For example, ego resiliency and ego control have been consistently shown to predict resilience within child samples (Cicchetti, Rogosch, Lynch & Holt, 1993; Flores, Cicchetti & Rogosch, 2005). One study in this review, Oshri *et al.*, (2011), considered these factors and found ego resiliency and ego control to be significant predictors of reduced internalising and externalising behaviours. The quality of their study would suggest that this is a relatively robust result, however, given the lack of consistency in the evidence base for other resilience factors, further replication would be necessary to support these findings. Emotion regulation has also been linked with resilience in children (Curtis & Cicchetti, 2007; Kim & Cicchetti, 2010; Maughan & Cicchetti, 2002) but, again, only one adolescent study was identified within this review. Schelble *et al.* (2010), a study of moderate quality, reported that emotion regulation was associated with academic resilience but further research is required to replicate this and to consider the influence of emotion regulation on other domains of resilience.

At the family and community level, the most well-researched factors were parent/caregiver support, family support and peer support/ peer characteristics. The results for these factors were inconsistent, with some studies finding significant results

while others did not. The results suggested that parental and peer support may each support resilience in some domains of functioning and not in others. This inconsistency in results may reflect changes in the developmental needs of young people as they move from early adolescence to adulthood. Within adolescence, a reduction in parental support is expected as the young person moves toward adulthood, with peer and community supports increasing (Helsen, Vollebergh & Meeus, 2000). The role of the parent also changes as the adolescent begins to form their individual identity and to become increasingly independent within the family (Koepke & Dennisen, 2012). This may mean that the effectiveness of support that families and peers offer may vary as a function of the age and developmental stage of the adolescent and the aspects of family and peer support that promote resilience may change as the adolescent moves closer to adulthood. Certainly, Rosenthal *et al.* (2003) found a significant difference in satisfaction with caregiver versus peer support when comparing their child and adolescent samples, which would provide some support for this hypothesis.

The mixed results regarding peer support may have also been influenced by variability in the factors that were studied within these papers. Some addressed perceived support from peers whereas others considered peer group characteristics, both of which showed significant relationships with some resilience factors and not others. Given the increasing importance of peer relationships as adolescents move into adulthood, further research is required in order to isolate the aspects of peer relationships that are protective for maltreated adolescents. One important relational factor which is notable for its absence in this review is attachment security, both with family and with peers. There is a wealth of evidence in the literature to support the role of attachment in

supporting positive adaptation within adulthood (Hankin, 2005; Lowell, Renk & Adgate, 2014; Roche, Runtz & Hunter, 1999). Consequently, given the importance that has been placed on interpersonal relationships in understanding resilient outcomes, it may be important to consider the ways in which attachment security might influence the development and maintenance of resilience in adolescence.

Aside from the previously noted limitations, there are also other aspects of the resilience literature which would benefit from consideration. Some studies within this review identified that the factors that predicted resilience showed differential effects for those who had experienced maltreatment versus those who had not (Asgeirsdottir *et al.*, 2010; Sagy & Dotan, 2001), however, no study considered the differential effects of maltreatment subtype. It has previously been shown that different maltreatment types may lead to different psychological and behavioural outcomes (Mills, Scott, Alati, O’Callaghan, Najman, & Strathearn, 2013; Petrenko, Friend, Garrido, Taussig, & Culhane, 2012) and emotional maltreatment in particular has been shown to predict psychopathology in adulthood (Cohen, Foster, Nesci, Halmi, Galyner, 2013). A significant percentage of maltreated children are also exposed to more than one subtype of maltreatment (Euser, van IJzendoorn, Prinzie, & Bakermans-Kranenburg, 2010; Radford *et al.*, 2011), which may lead to a more complex response to maltreatment. Therefore, further research is required in order to clarify both the impact of co-occurring maltreatment types and the differential effects of each subtype.

Additionally, although this review suggests that specific psychopathology and internalising and externalising behaviours are consistently considered with regard to

resilience, there remains a level of variance in the outcomes that are assessed in resilience literature. This is problematic in that different definitions may lead to differences in whether individuals are categorised as resilient or non-resilient (Walsh *et al.*, 2010), which may further complicate our understanding of the factors that might predict resilience. Due to the complex nature of resilience, it is important that clear definitions of resilience and of the outcomes being assessed are provided within the literature to further the integration of this research into a coherent resilience framework. As has previously been noted, it may also be that certain factors, such as parental support, influence resilience within one domain of functioning but not necessarily within another, necessitating an approach that integrates an understanding of the multitude of domains in which resilience can exist.

1.6.1 Conclusion

This study demonstrated that the overall quality of research within this field is of good to moderate quality, suggesting that the findings of this review can be considered to be relatively robust. Positive attitudes toward school, extra-curricular activities, supportive parent/caregiver relationships and supportive peer relationships have been shown in this review to be linked with more adaptive functioning. All of these factors can be linked to interpersonal relationships, serving to emphasise the importance of family and community level factors in supporting the maintenance of resilience over time. The evidence base for clinical interventions which promote improved interpersonal functioning in adolescents is limited (Toth, Gravener-David, Guild & Cicchetti, 2013), however, this review highlights a need to continue to develop this evidence base. The

results also provide support for school-based interventions that might serve to foster resilience through improving adolescents' attitudes towards school (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). However, further research is still required to provide clarification of the ways in which relevant protective factors might support resilience across different domains of functioning. Several factors, particularly at the individual level, lacked replication and it may be that other, more significant factors will arise as further contributions are made to the evidence base.

1.7 References

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Chapter 2: Empirical Study^{1 2}

2.1 Title Page:

Adolescent resilience following childhood maltreatment: the mediating role of attachment and the impact on psychological distress

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2.2 Abstract

Childhood maltreatment has been linked with negative consequences that can persist across the lifespan, however, a significant minority of individuals show resilience to these consequences. One conceptualisation of resilience describes a set of individual traits that reflect resourcefulness and flexibility in the face of adversity. The purpose of this study is to develop an improved understanding of the concept of individual resilience following childhood maltreatment. Firstly, it was hypothesised that individual trait resilience would mediate the relationship between childhood maltreatment and psychological distress. Secondly, it was hypothesised that attachment insecurity would mediate the relationships between childhood maltreatment and individual resilience. Forty adolescents attending Child and Adolescent Mental Health Services (CAMHS) answered questions regarding maltreatment history, resilience, attachment and psychological distress. Mediation analyses indicated that resilience significantly mediated the relationship between maltreatment history and psychological distress. Attachment avoidance mediated the relationship between maltreatment history and resilience, however, attachment anxiety did not. Further analyses suggested that maltreatment severity moderated the relationship between attachment anxiety and resilience. Generalisability of this study was limited by sample characteristics and further research may be required to address barriers that young people may face regarding participation in research studies. Discussion is made with regard to the implications for further research and for clinical interventions with young people who have experienced maltreatment.

Key Words: Child abuse, adolescent, resilience, attachment

2.3 Introduction

Childhood maltreatment is the collective term used to describe all forms of childhood abuse, ill-treatment or neglect resulting in actual or potential harm to the child (Radford *et al.*, 2011). A significant percentage of maltreated children are exposed to more than one subtype of maltreatment (Radford *et al.*, 2011), thus increasing the nature of the traumatic experience. Maltreatment has often been shown to be experienced by children on a repeated basis and can thus represent a chronic and complex traumatising experience (Van der Kolk, 2005). Clinical studies have suggested that such high levels of stress in early life can lead to long-term changes in multiple neurotransmitter systems and brain structures which have been implicated in the aetiology of depression and other psychiatric disorders (De Bellis *et al.*, 1999; Heim, Owens, Plotsky & Nemeroff, 1997). Consequently, childhood maltreatment can have a profound impact on a child's neuropsychological and psychological development. This has been shown to result in impairments across multiple domains of functioning (Arnow, Blasey, Hunkeler, Lee & Hayward, 2011; Jud, Landolt, Tatalias, Lach & Lips, 2012; Mills *et al.*, 2011; Topitzes, Mersky & Reynolds, 2011), however, not all maltreated children go on to experience these impairments in functioning. Evidence would suggest that around 20% of adults who report a history of childhood maltreatment show resilience to these negative consequences, presenting with positive adaptations in later life (McGloin & Widom, 2001; Walsh, Dawson & Mattingly, 2010).

2.3.1 The concept of resilience

Resilience is a complex phenomenon which has been criticized in the past due to a lack of consensus with regard to how to define and study the construct (Kaplan, 2005; Rutter, 2006). It was defined by Garmezy & Masten (1991) as: “a process of, or capacity for, or the outcome of, successful adaptation despite challenging or threatening circumstances”. Resilience is considered present when children show a normal range of competence across several domains of functioning, which means is that there are a range of outcomes upon which resilience could be measured (Walsh *et al.*, 2010). Several outcomes have been used within the extant literature, including social competence, average academic achievement and absence of psychopathology (Cicchetti & Rogosch, 1997; Haskett, Nears, Sabourin Ward & McPherson, 2006; Jaffee, Caspi, Moffitt, Polo-Tomas & Taylor, 2007). However, resiliency can also be conceptualised as a trait or characteristic of the individual, rather than just an outcome of adversity. Block and Block (1980) defined this as ego resiliency: a set of traits reflecting resourcefulness and flexibility in functioning in response to difficult circumstances. This conceptualisation sees resilience as a stable cognitive structure or schema that is the product of an interaction between the self and the environmental demands that have been placed upon the individual (Block, 2002). Resilience as defined by this construct has been shown to predict psychopathology in adolescence (Cicchetti, 2013; Oshri, Rogosch & Cicchetti, 2013) and has also been shown to be reduced in individuals with a history of maltreatment (Oshri *et al.*, 2013), suggesting that higher trait resiliency is a protective factor against negative outcomes that can become disrupted by childhood maltreatment. The strength of these results lend credence to the direct measurement of

resilience related traits, which would allow for improved consistency within resilience literature. Unfortunately, the majority of measures of resilience continue to require validation work, particularly those developed for young people (Windle, Bennett & Noyes, 2011), meaning that further research is required to support work within this field.

2.3.2 The role of attachment

The concept of attachment originally arose in the study of infant behaviour by Bowlby (1969, 1973, 1982) and Ainsworth (1989). Bowlby proposed an “attachment behavioural system” with the function of eliciting comfort from and maintaining proximity to the caregiver, leading to a consistent sense of security. This system is not only behavioural but also reflects mental representations of the self in relation to others. Early caregiving experiences lead a child to develop expectations and patterns of relating to others that have been shown to be relatively stable across the lifespan (Fraley, 2002; Waters, Merrick, Treboux, Crowell & Albersham, 2000).

Research on adult attachment has identified two dimensions of attachment (Griffin & Bartholomew, 1994a; Brennan, Clark & Shaver, 1998). The first dimension, attachment anxiety, includes a desire for closeness and safety, worries about the availability of loved ones and worries about one’s value to others. The second dimension, attachment avoidance, includes discomfort with emotional closeness and depending on others and a preference for interpersonal self-reliance. These dimensions were defined by Bartholomew (1990) as the constructs of *model of self* and *model of others*, whereby model of self reflects the degree to which individuals feel a sense of self-worth and

competence in relationships and the model of other represents the degree that individuals feel that relationships with others are positive experiences and try to seek them out. According to this theoretical model, greater attachment anxiety and/or greater attachment avoidance represent increased attachment insecurity.

Increased insecure attachment and reduced secure attachment have been shown in individuals with a history of childhood maltreatment (Aspelmeier, Elliot & Smith, 2007; Haskett *et al.*, 2006; Mickelson, Kessler & Shaver, 1997). This suggests that maltreatment in childhood might serve to disrupt or change an individual's attachment processes, leading to higher levels of attachment insecurity. When we consider that insecure attachment has been demonstrated to be a significant risk factor for the development of psychopathology in both childhood and adulthood (Muller, Thornback & Bedi, 2012; Sandberg, Suess & Heaton, 2010), this may suggest an indirect role for attachment in influencing negative outcomes following childhood maltreatment. Shapiro & Levendosky (1999) found attachment to be a significant mediator in the relationship between sexual abuse and both psychological distress and coping. Salzinger, Rosario & Feldman (2007) also found attachment to parents to mediate the relationship between preadolescent physical abuse and adolescent violent delinquency, though attachment to friends did not contribute to this relationship. Hankin (2005) showed attachment to mediate the relationship between childhood maltreatment and depressive symptoms. Together, these results suggest that attachment security may play an important role in either influencing resilience following maltreatment or moderating the effect of maltreatment over time.

2.3.3 Aims and hypotheses

The aim of this study is to develop an improved understanding of the impact of childhood maltreatment on individual resilience. This study will firstly attempt to clarify the role that resilience plays in the relationship between maltreatment and psychological distress. The study will then consider a possible mediating role for attachment insecurity in the relationship between maltreatment history and resilience. In order to support these aims, resilience will be assessed using a newly developed resiliency measure. This measure assesses resilience using two indices: a resource index which considers individual protective factors associated with resilience, and a vulnerability index which includes emotional reactivity as a risk factor for reduced resilience (Prince-Embury, 2007).

From these aims, the following hypotheses can be derived:

- **Hypothesis 1:** Resilience (resource and vulnerability) will mediate the relationship between maltreatment and psychological distress.
- **Hypothesis 2:** Attachment insecurity (anxiety and avoidance) will mediate the relationship between childhood maltreatment and resilience resource.
- **Hypothesis 3:** Attachment insecurity (anxiety and avoidance) will mediate the relationship between childhood maltreatment and resilience vulnerability.

2.4 Method

2.4.1 Design

A cross-sectional design was used with a clinical sample of adolescents attending Child and Adolescent Mental Health Services (CAMHS) in NHS Tayside. Participants were administered four standardised self report questionnaires measuring maltreatment history, attachment style, resilience and psychological distress. This study design was reviewed and approved by the East of Scotland Research Ethics Committee and the Tayside Research and Development Office (see Appendices 4, 5 and 6 for approval letters and related correspondence).

2.4.2 Participants

Participants were English-speaking males and females aged 13 to 17 years old who were attending CAMHS at the time of recruitment. Young people with learning disabilities were excluded because appropriate literacy skills and cognitive ability were required for consent and completion of the questionnaires. Young people with a diagnosis of Autistic Spectrum Disorder were excluded due to the differences in attachment security and attachment behaviours that have been implied with this population (Van Ijzendoorn *et al.*, 2007; Rutgers, Bakermans-Kranenburg, Ijzendoorn & Berckelaer-Onnes, 2004). In order to ensure that participants were sufficiently able to provide informed consent for participation and had a stable source of support in the event of any difficulties following participation, individuals experiencing severe levels

of distress, or currently undergoing Social Work or Child Protection proceedings, were also excluded.

2.4.3 Procedure

Participants were recruited through their CAMHS clinician. All clinicians were provided with information regarding the study and asked to consider the suitability of their patients for participation. Following identification, clinicians provided all potential participants with a participant information sheet and opt-in sheet, while participants under 16 years of age were also provided with a parent information sheet to give to their parent or guardian (see Appendices 8 & 9). Potential participants were offered two methods to opt-in to the study. They could either opt-in through their clinician at the following appointment or contact the chief investigator directly. In all cases, participants were given at least one week to consider whether they wished to participate.

Individuals who chose to participate were asked to complete a participant consent form. The parents of participants under the age of 16 were also asked to complete a parent consent form (see Appendix 10 for relevant forms). After providing consent, participants either completed the measures with their clinician or with the chief investigator. In most cases, the measures were completed immediately following the provision of informed consent. In some cases, consent was provided to the participant's clinician and they were subsequently referred to the chief investigator for completion of the measures. Where this occurred, the chief investigator revisited consent to ensure that the individuals still wished to participate. Once the questionnaires were completed,

participants were given time to discuss any questions or concerns arising from participation. There were no reports from clinicians of adverse reactions following participation.

2.4.4 Measures

2.4.4.1 Demographic Questionnaire

Demographic information including age, gender, ethnicity, postcode and reason for referral to CAMHS was collected. The postcodes were used to evaluate the role of socioeconomic status using the Scottish Index of Multiple Deprivation (SIMD) decile point scale. This is a scale from 1, which indicates the most deprived, through to 10, which represents the least deprived areas in Scotland (Scottish Executive, 2012).

2.4.4.2 The Young Person's Clinical Outcome in Routine Evaluation (YP – CORE) (Twigg *et al.*, 2009)

The YP-CORE is a 10 item self report measure of global distress designed for adolescents. Respondents are asked to consider how they have felt over the past week and to rate each item on a five point Likert scale from “Not at all” to “Most or all of the time”. Scores range from 0 to 40, with a higher score indicating a greater level of global distress. It has been shown to have high internal reliability and has demonstrated acceptable psychometric properties for measuring global distress (Twigg *et al.*, 2009). Cronbach's alpha level for the current study was .914.

2.4.4.3 Adolescent Relationship Scales Questionnaire (A-RSQ; Griffin and Bartholomew, 1994b; adapted by Scharfe, 2002, for adolescents)

The A-RSQ is a 17 item self report measure which was adapted from the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994b) by Scharfe (2002) for adolescents. The items included in the A-RSQ differ slightly in word choice in order to make them more accessible to a younger age group. Participants answer each question on a seven point Likert scale ranging from 1 (not at all like me) to 7 (very much like me). The A-RSQ was scored as a continuous measure across the two underlying attachment dimensions, using the method recommended by Scharfe (see http://www.people.trentu.ca/escharfe/index_files/Page791.htm). This involves calculating the four underlying attachment prototypes of secure, dismissing, fearful and preoccupied and calculating the following equations:

Self Model = (secure + dismissing) minus (fearful + preoccupied).

Other Model = (secure + preoccupied) minus (fearful + dismissing)

The two-dimensional model of adult attachment has been found to better capture the individual variability in attachment styles across time and relationships (Bartholomew & Horowitz, 1991). In the A-RSQ, lower scores on the Self model represent higher attachment anxiety and low scores on the Other model represent higher attachment avoidance. Cronbach's alpha levels in the current study for secure, dismissing, fearful and preoccupied attachment styles were .580, .553, .672 and .677 respectively.

2.4.4.4 Resiliency Scales for Children and Adolescents (Prince-Embery, 2007)

The RSCA is a self-report measure which contains three global scales: Sense of Mastery, Sense of Relatedness and Emotional Reactivity Index that quantify an individual's strengths and vulnerabilities with regard to resilience. From these scales it is possible to derive a Resource Index and a Vulnerability Index in the following way:

$$\text{Resource Index} = \text{Sense of Mastery} + \text{Sense of Relatedness}$$

$$\text{Vulnerability Index} = (\text{Sense of Mastery} + \text{Sense of Relatedness}) - \text{Emotional Reactivity}$$

The Response options are ordered on a 5-point Likert scale from Never to Almost Always. In calculating the RSCA for a clinical sample, raw scores are converted into standardized T-scores, however, for the purpose of this analysis only raw scores were used to calculate the relevant indices. Both the Resource Index and Vulnerability Index have previously shown high levels of internal consistency and validity (Prince-Embery, 2007; Prince-Embery, 2013). Cronbach's alpha for the Mastery, Relatedness and Reactivity scales in the current study were .820, .901 and .832 respectively.

2.4.4.5 Childhood Trauma Questionnaire – Short Form (CTQ) (Bernstein *et al.*, 2003)

The CTQ is a 28 item self report measure that provides a brief screening for histories of abuse and neglect, developed by Bernstein *et al.* (2003) from the original 70 item Childhood Trauma Questionnaire (Bernstein *et al.*, 1994). The measure assesses five types of childhood trauma: emotional abuse, physical abuse, physical neglect, sexual abuse and emotional neglect. Respondents rate each item on a 5 point Likert scale from

“Never true” to “Very Often True”. Each type of maltreatment is addressed by five items, with three Minimisation/Denial items to detect tendencies to minimise or deny abuse experiences. For each type of abuse, scores range from 5 to 25, with a higher score indicating greater severity of abuse. A total score can be calculated for all forms of abuse, resulting in a possible maximum score of 125. This measure has been shown to have good construct and criterion-related validity and good reliability for use with adolescents aged 12 – 17 (Bernstein *et al.*, 2003). Cronbach’s alpha for the current study was .916.

2.4.5 Statistical Analyses

2.4.5.1 Analysis methods

Data from questionnaires were entered into the software package IBM SPSS version 19 for Windows. Descriptive statistics were used for the socio-demographic factors in the sample and the scores on each identified variable. Missing values analysis was carried out. Data were then analysed for normality and transformations carried out where necessary. Pearson’s correlations of the socio-demographic variables of age and SIMD and all dependent variables were carried out in order to identify potential covariates in the hypothesised associations. Independent samples t-tests were carried out between gender and each dependent variable to identify possible covariance. Pearson’s correlations were conducted in order to investigate the overall associations between maltreatment history, attachment anxiety, attachment avoidance, resilience resource, resilience vulnerability and psychological distress.

Mediation analyses were conducted using the bootstrapping procedure recommended by Preacher & Hayes (2004, 2008) which overcomes the difficulties associated with both the Baron and Kenny (1986) mediation procedure and with the Sobel test method, which relies on distribution assumptions and standard error estimates. Comparative studies have shown bootstrapping to have the highest power, best control of Type I error and to be more powerful than the Sobel test (Hayes, 2009). Bootstrapping involves randomly sampling the indirect effect with replacement from the data set and computing the statistic of interest in each 'bootstrap sample'. For the purpose of this research, mediation effects were computed using bias corrected 95% confidence intervals and the recommended 5,000 bootstrap samples (Preacher & Hayes, 2004). A mediation effect is considered significant if the upper and lower bounds of the bias corrected confidence intervals do not contain zero i.e. the mediation is not at zero at the set confidence level ($p < .05$). Preacher and Kelley (2011) recommend that at least one measure of effect size is reported alongside confidence intervals, therefore, the value of Kappa-squared (k^2), a standardised and bounded measure of effect size, was reported in the current study along with an index of the explained variance (R^2).

2.4.5.2 Power analysis

Sample size was calculated based on the statistical analysis required to assess mediation effects. Preacher and Hayes (2008) bootstrapping technique does not have a sample size requirement in order to achieve appropriate power, however, the greater the sample size the more reliable the confidence intervals generated by the bootstrapping method. Thus, the sample size calculation was carried out as a guide to ensure that an appropriate sample size was achieved. The power calculation assumed a required power of 0.8 and

an error value of 0.05. G-Power, a free power calculation programme, was utilised to carry out the calculation (Faul, Erdfelder, Lang & Buchner, 2007).

No previous study reporting effect size had carried out similar analysis using the same variables and as such the effect size was based on studies which examined correlations between these or similar variables. O'Dougherty Wright, Crawford and Castillo (2009) reported correlations ranging from .21 to .50 between internalising symptoms and different types of maltreatment history in young adults. Wekerle and Wolfe (1998) reported a medium correlation between maltreatment and avoidant attachment ($r = 0.28$) and a small correlation between maltreatment and anxious attachment ($r = 0.21$). The RSCA is a relatively new measure, however, a recent study reported large correlations between the three subscales (mastery, relatedness and reactivity) and post-traumatic stress symptoms ($r = -0.44, -0.49$ and 0.67 , respectively) (Powers, 2011).

Based on this evidence, it was decided that a medium effect size would be assumed. There is currently no statistical program which calculates sample size for mediation analysis so to ensure that an appropriate sample size was planned, a sample size calculation was carried out for a multiple regression with two predictors. G Power calculated that a sample size of 68 participants would be required.

2.5 Results

2.5.1 Sample characteristics

Forty participants were recruited for this study. The age range of participants was 13 to 17 with a mean age of 15.5 (SD = 1.40). Eighty-eight percent of the sample were female (N = 35) and all participants were Caucasian. Referrals were received from a range of staff working within CAMHS as outlined in Table 4. The Scottish Index of Multiple Deprivation (SIMD) decile point scale indicated that in the overall sample, 37.5% of participants lived in the five most deprived SIMD areas, with the SIMD scores ranging from 1 to 10.

Table 4: Source of referrals to the study

Referrer	Frequency	%
Clinical Psychologist	19	47.5
Primary Mental Health Worker	11	27.5
Psychological Therapist	4	10.0
Nurse	3	7.5
Psychiatrist	3	7.5

Within CAMHS, participants are not always given a psychiatric diagnosis and treatment is determined based on the presenting issues. The majority of participants were reported to have been referred to CAMHS presenting with depression/ low mood (N = 20), anxiety (N = 15) and self-harm (N = 5). Eleven of the participants were described as having more than one presenting issue and five did not report the reason for referral. Other presenting issues included trauma (N = 1), eating disorder (N = 2), phobia (N = 1), low self-esteem (N = 1), anger (N = 1) and transgender issues (N = 1).

Scores were calculated for the 5 subscales of the CTQ in order to determine the level and types of maltreatment endorsed within this sample. Cut-off scores for each CTQ subscale were identified by Bernstein and Fink (1998) and the percentage of individuals who met the cut-off scores for low-moderate and moderate-severe maltreatment are reported in Table 5. Low to moderate cut off scores were ≥ 9 for emotional abuse, ≥ 8 for physical abuse, ≥ 6 for sexual abuse, ≥ 10 for emotional neglect and ≥ 8 for physical neglect. Moderate to severe cut off scores were ≥ 13 for emotional abuse, ≥ 10 for physical abuse, ≥ 8 for sexual abuse, ≥ 15 for emotional neglect and ≥ 10 for physical neglect. Scores indicated that the most prevalent forms of maltreatment in this sample were emotional abuse and emotional neglect. Overall, 70% of the sample endorsed scores above the low to moderate cut-off for at least one subtype of maltreatment while 35% of the sample endorsed scores above the moderate to severe cut off. In total, 71.4% of those participants endorsing moderate to severe maltreatment reported scores above the cut off for two or more subtypes of maltreatment.

Table 5: Mean, standard deviation and percentage of participants scoring above cut-offs for each maltreatment subtype

Maltreatment Type	Mean	Standard Deviation	% above low to moderate cut off	% above moderate to severe cut-off
Emotional abuse	10.13	4.56	60.0	27.5
Emotional neglect	10.30	4.78	42.5	22.5
Physical neglect	7.23	3.42	32.5	15.0
Physical abuse	5.78	2.08	10.0	10.0
Sexual abuse	5.80	3.38	7.5	7.5

27.5% of the total sample scored on at least one of the three minimisation/denial items on the CTQ, indicating that some of these figures may represent an underestimate of the maltreatment level within the sample.

For all of the research measures, the mean scores, standard deviation and range were calculated (see Table 6). Mean scores in the YP-CORE indicated clinical levels of psychological distress within the moderate to severe range.

Table 6: Means, standard deviation and range for research measures

Measure	Mean	Standard Deviation	Range
CTQ	39.22	13.61	25 – 85
Attachment Anxiety	3.84	12.72	- 20 – 30
Attachment Avoidance	- 3.81	9.78	- 24 – 15
Resource	93.78	25.52	47 - 149
Vulnerability	53.30	37.80	- 25 - 135
YP-CORE	20.55	9.33	1 - 35

A missing values analysis indicated that three participants had missing responses. Two participants had one missing value in the RSCA and one had one missing value in the CTQ. As this represented less than 20% of each measure, missing variable data was replaced with individual means for the relevant subscale as recommended by Downey & King (1998), who suggest that mean replacement maintains a good representation of original data on Likert-type scales. Penny and Atkinson (2012) have also demonstrated this to be a valid strategy when dealing with a small percentage of missing data.

2.5.2 Normality of the data

The distributions of the variables under investigation were analysed to assess for normality of the distribution. The two main ways in which data can deviate from normality are skewness, which refers to asymmetrical distributions, and kurtosis, which refers to flat or narrow distributions. Values of skewness and kurtosis and respective standard errors (SE) were obtained from the descriptive statistics and converted to standardised z -scores using Field's (2013) formula where the statistic is divided by its respective SE. The further a z -score is from zero indicates an increased likelihood that the data is not normally distributed. It is suggested that a z -score over ± 2.58 indicates a significantly different distribution at the $p < .01$ level.

Table 7: Skewness and kurtosis values, standard errors (SE) and z-scores

Variable	Skewness		Kurtosis		Z score	
	Value	SE	Value	SE	Skewness	Kurtosis
CTQ	1.56	.374	2.900	.733	4.171**	3.956**
Attachment Anxiety	-.086	.374	-.779	.733	-.230	-1.063
Attachment Avoidance	-.001	.374	-.369	.733	-.003	-.503
Resource	.206	.374	-.563	.733	.551	-.768
Vulnerability	.069	.374	-.413	.733	.184	-.563
YP-CORE	-.429	.374	-.943	.733	-1.147	-1.286

Note: ** $p < 0.01$

As is indicated by the z -scores in Table 6, the CTQ measure appeared to have a distribution significantly different from normality. Looking at the distribution of these scores graphically indicated that the CTQ measure had a skew toward lower total scores.

2.5.3 Data transformation

Log transformations were carried out in order to transform the data (as suggested by Field, 2013). Normality tests were then re-run and z -scores recomputed (Skewness z -score = 2.017; Kurtosis z -score = -0.248). Transformations were successful in producing non-skewed data for the CTQ variable so these transformed variables were used for all reported correlations. The Preacher and Hayes (2008) bootstrapping resampling method for mediation analysis does not rely on parametric assumptions regarding the sample distribution, however, mediation analyses were run with both transformed and non-transformed data and little difference was found. All mediation results reported here are therefore using the non-transformed variable.

2.5.4 Covariates

Correlations were conducted between age, SIMD rank and each of the dependent variables of psychological distress, resource and vulnerability in order to determine whether these variables should be considered covariates and controlled for in subsequent analyses. No significant correlations were found, therefore these demographic variables were not included as covariates in later analyses. As gender is a categorical demographic variable, correlations were investigated by way of independent sample t -tests. With equality of variances assumed, there was no significant relationship with psychological distress ($t = -1.44, p = .158$), resilience resource ($t = 1.86, p = .071$) or resilience vulnerability ($t = 2.02, p = .051$), though the relationship with resilience vulnerability was close to significance. As no significant differences were found, gender was not included as a covariate.

2.5.5 Hypothesis 1: Resilience (resource and vulnerability) will mediate the relationship between maltreatment and psychological distress.

To determine the relationships between the variables of interest for hypothesis 1, correlations were carried out between trauma history, resource, vulnerability and psychological distress and the results are presented in Table 8.

Table 8: Bivariate correlations between maltreatment history, resource, vulnerability and psychological distress

	CTQ	Resource	Vulnerability	YP-CORE
CTQ	1			
Resource	-.527**	1		
Vulnerability	-.539**	.952**	1	
YP-CORE	.412**	-.703**	-.771**	1

Significant correlations were found between all of the variables of interest. The significant negative correlation between psychological distress and both resource and vulnerability would indicate support for the validity of the RSCA as a measure of resilience in adolescents. The results also suggested that the inclusion of the emotional reactivity subscale of the RSCA to form the vulnerability index led to a slight increase in the correlation between resilience and psychological distress.

To explore whether resilience resource and vulnerability mediated the relationship between maltreatment history and psychological distress, Preacher and Hayes (2008) bootstrapping resampling method was employed. As a significant correlation was found between the independent variable (maltreatment history) and the dependent variable

(psychological distress), mediation rather than indirect effects were being measured.

This means that the model tested whether the mediator variables either partially or fully accounted for the relationship between the independent and dependent variables (see Hayes (2009) and Mathieu & Taylor (2006) for further information regarding this distinction). Resource and vulnerability were investigated as mediators in separate models due to their overlapping constructs and significant correlation.

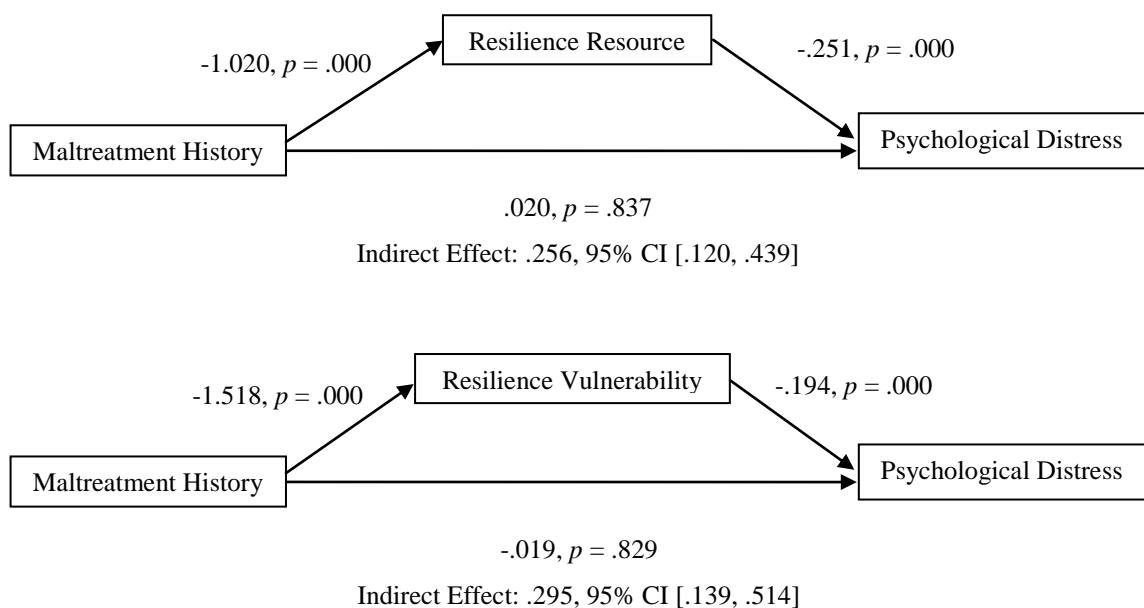


Figure 2: Diagrams of regression analyses depicting the role of resilience resource and vulnerability in mediating the relationship between maltreatment history and psychological distress.

Note: All paths are unstandardized coefficients.

The simple mediation model results indicated that there was no significant direct effect of maltreatment history on psychological distress, however, there was a significant indirect effect of resilience resource on this relationship (lower BC CI .120, upper BC

CI .439). This model explained 50% of the variance in the dependent variable ($R^2 = .494$) and the effect size was large ($k^2 = .37$, 95% CI [.164, .579]). Analyses also indicated that resilience vulnerability significantly mediated the relationship between maltreatment history and psychological distress (lower BC CI .139, upper BC CI .514). This model explained 60% of the variance in the dependent variable ($R^2 = .595$) and the effect size was large ($k^2 = .44$, 95% CI [.216, .651]).

2.5.6 Hypothesis 2: Attachment insecurity (anxiety and avoidance) will mediate the relationship between childhood maltreatment and resilience resource.

To determine the relationships between the variables of interest for both hypothesis 2 and hypothesis 3, correlations were conducted between trauma history, attachment anxiety, attachment avoidance, resource and vulnerability (see Table 9). As has been previously reported, a significant negative correlation was found between maltreatment history and both resilience resource and vulnerability. A significant relationship was also found between attachment anxiety and both resource and vulnerability and between attachment avoidance and both resource and vulnerability. No significant relationship was found between maltreatment history and attachment anxiety but there was a significant correlation between maltreatment history and attachment avoidance.

Table 9: Bivariate correlations between maltreatment history, attachment anxiety, attachment avoidance, resource and vulnerability

	CTQ	Attachment Anxiety	Attachment Avoidance	Resource	Vulnerability
CTQ	1				
Attachment Anxiety	-.163	1			
Attachment Avoidance	-.356*	.176	1		
Resource	-.527**	.647**	.502**	1	
Vulnerability	-.539**	.682**	.434**	.954**	1

Note: * $p < 0.05$. ** $p < 0.01$.

Mediation analysis was then conducted to address hypothesis 2. As seen in Figure 3, maltreatment history directly predicted resilience resource in both mediation models. A partial effect of attachment anxiety on resilience resource was found but there was no overall mediator effect of attachment anxiety (lower BC CI -.637, upper BC CI .124). There was a significant indirect effect of attachment avoidance on the relationship between maltreatment history and resilience resource (lower BC CI = -.553, upper BC CI = -.044). This model explained 39% of the variance in resilience resource ($R^2 = .394$) and the effect size was medium ($k^2 = .15$, 95% CI [.034, .328]).

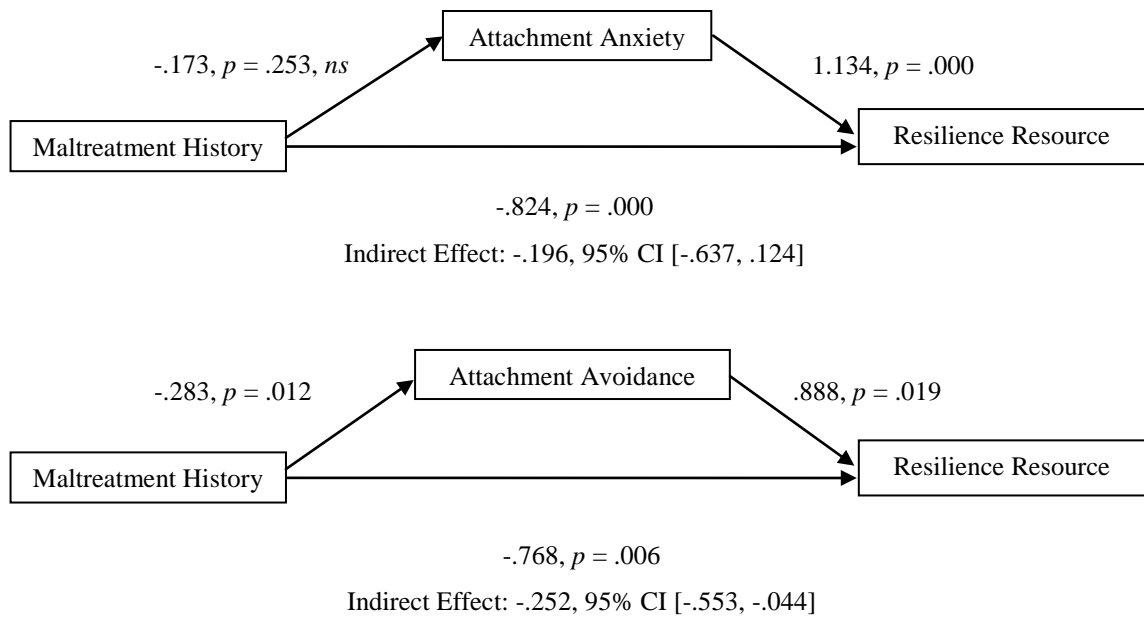


Figure 3: Diagrams of regression analyses depicting the role of attachment anxiety and attachment avoidance in mediating the relationship between maltreatment history and resilience resource.

Note: All paths are unstandardized coefficients.

2.5.7 Hypothesis 3: Attachment insecurity (anxiety and avoidance) will mediate the relationship between childhood maltreatment and resilience vulnerability.

The same mediation analysis was then carried out with resilience vulnerability in order to address hypothesis 3, as shown in Figure 4. Maltreatment history was found to directly predict resilience vulnerability. A partial effect of attachment anxiety on resilience vulnerability was found but there was no overall mediator effect of attachment anxiety (lower BC CI $-.935$, upper BC CI $.218$). A partial effect of maltreatment history on attachment avoidance was found but there was no overall

mediator effect of attachment avoidance in the relationship between maltreatment and resilience vulnerability (lower BC CI $-.707$, upper BC CI 1.020).

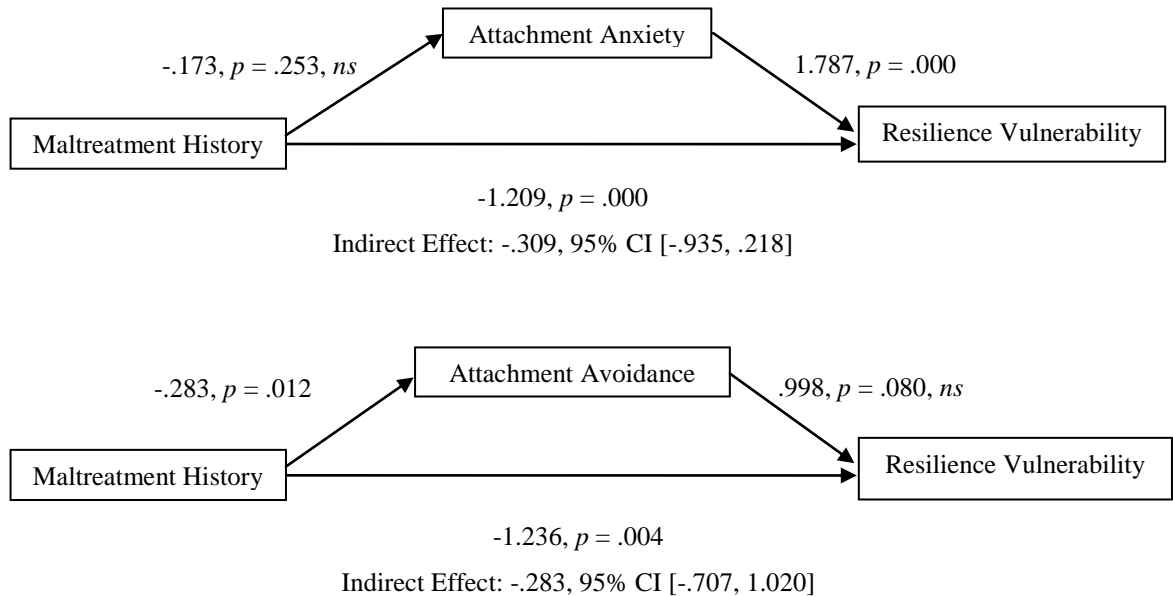


Figure 4: Diagrams of regression analyses depicting the role of attachment anxiety and attachment avoidance in mediating the relationship between maltreatment history and resilience vulnerability.

Note: All paths are unstandardized coefficients.

2.5.8 Further Exploratory Analyses

As has been previously stated, attachment anxiety was significantly related to both resilience resource and vulnerability but not to maltreatment history. This indicated that childhood maltreatment did not have a direct impact on attachment anxiety in this sample. It was theorised that this might indicate a possible moderating role for childhood maltreatment in the relationship between attachment anxiety and resilience, whereby higher levels of maltreatment reduce the strength of the relationship between attachment anxiety and resilience.

Moderation analyses were carried out and results are described in Tables 10 and 11. A significant interaction effect was found in the model of predictors of resilience resource (lower BC CI -.072, upper BC CI -.007). The threshold for significance in the relationship between attachment anxiety and resilience resource was at the CTQ score of 50.32. This indicates that attachment anxiety is not a significant predictor of resilience resource when childhood maltreatment scores are higher than 50.32. This model explained 67% of the variance in resilience resource ($R^2 = .673$). Figure 5 shows a graph of the relationship, demonstrating the interaction between attachment anxiety and maltreatment history at low, mean and high levels with regard to resilience resource. These levels represent scores that are a standard deviation below the mean, the mean and a standardisation above the mean, respectively.

Table 10: Linear model of predictors of resilience resource

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	92.54	2.587	35.771	.000
Maltreatment History (centred)	-1.015	.138	-7.355	.000
Attachment Anxiety (centred)	1.065	.246	4.331	.000
Attachment Anxiety x Maltreatment History	-.040	.016	-2.458	.019

Note: $R^2 = .673$

No significant interaction effect was found in the model of predictors of resilience vulnerability (lower BC CI -.096, upper BC CI .007). Results suggested that the relationship between attachment anxiety and resilience vulnerability remained significant until scores on the CTQ were higher than 53.61. This non-significant relationship is graphically represented in Figure 5.

Table 11: Linear model of predictors of resilience vulnerability

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	51.915	3.705	14.011	.000
Maltreatment History (centred)	-1.425	.270	-5.277	.000
Attachment Anxiety (centred)	1.709	.241	5.019	.000
Attachment Anxiety x Maltreatment History	-.044	.025	-1.752	.088

Note: $R^2 = .687$

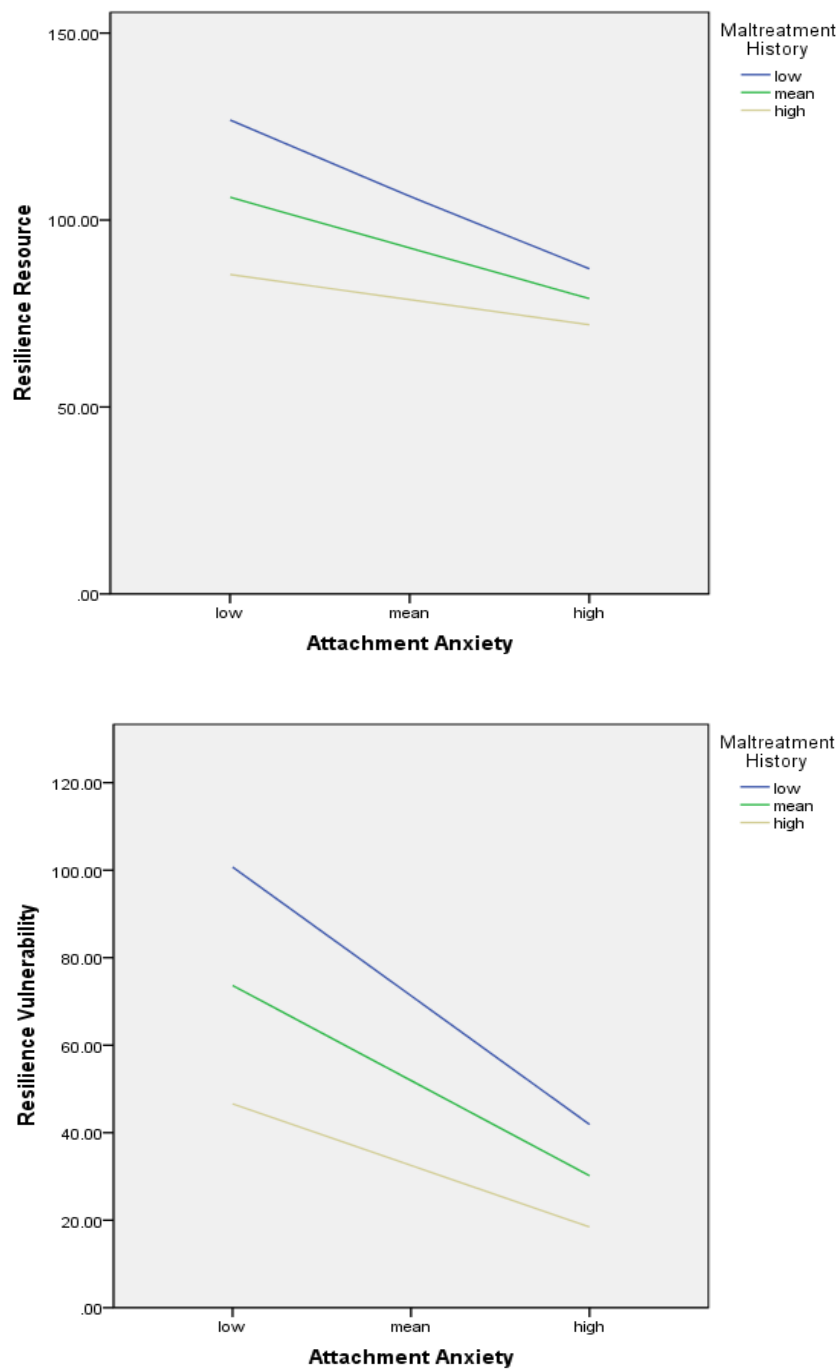


Figure 5: Graphical representation of resilience resource and resilience vulnerability at high, mean and low levels of attachment anxiety and maltreatment history

2.6 Discussion

2.6.1 Summary of results

The aim of this study was to investigate the impact of child maltreatment on resilience in a clinical sample of adolescents. The prevalence of maltreatment history in this sample was higher than the reported prevalence within the general population (Radford *et al.*, 2011), however, this would be expected within a clinical sample given the well-established relationship between maltreatment and psychopathology (Arnow *et al.*, 2011; Brown, Cohen, Johnson & Smailes, 1999). In this sample, the majority of adolescents had experienced at least low levels of maltreatment in childhood, while one third reported moderate to severe maltreatment. The most commonly endorsed forms of maltreatment were emotional abuse and emotional neglect. Emotional maltreatment tends to be a particularly under-estimated form of maltreatment (Barnett, Miller-Perrin & Perrin, 2005) and child protection practices have tended to focus on individuals who have been visibly and physically abused, to the possible detriment of protecting those who have been emotionally maltreated (O'Hagan, 2006). Emotional maltreatment has been shown to have significant detrimental effects on adult well-being (Perry, Bond & Roy, 2007) and, in fact, has previously been shown to be the type of maltreatment that most strongly predicts adult psychopathology (Cohen, Foster, Nesci, Halmi, Galynker, 2013). Therefore, these results have implications regarding the need to further assess the impact of emotional maltreatment on adolescents attending mental health services.

With regard to psychological distress, this study found that maltreatment history and resilience were significantly correlated with psychological distress. Both resilience resource and resilience vulnerability significantly mediated the relationship between maltreatment and distress, indicating that resilience plays an indirect role in explaining this relationship. Resilience vulnerability explained a greater percentage of the variance, suggesting that the inclusion of all three sub-scales of the RSCA provided a more comprehensive model of the factors that indirectly contribute to distress. Given that the majority of studies within this field continue to use indirect measurements of resilience, such as psychopathology or educational competence, this study provides support for the utilisation of a more direct measure of resilience factors as a research outcome. This evidence also has implications with regard to clinical intervention with maltreated adolescents. The role of resilience would suggest that any interventions for individuals with a history of maltreatment would benefit from assessing and addressing resilience related factors, rather than primarily focussing on the presenting psychopathology. If interventions do not seek to improve overall resiliency, then it may be that improvements in psychopathology are short-lived and do not result in sustainable change.

With regard to the second and third hypotheses of this study, attachment avoidance was shown to correlate significantly with both maltreatment and resilience. Childhood maltreatment was associated with increased attachment avoidance and this in turn was associated with reduced resilience. Mediation analyses indicated a significant indirect effect of attachment avoidance on the relationship between maltreatment and resilience resource but not resilience vulnerability. This indicates that the inclusion of the

emotional reactivity subscale of the RSCA reduced the explanatory value of the model, indicating that attachment avoidance may be associated with the subscales of mastery and relatedness but not with the subscale of emotional reactivity. This makes sense when we consider that individuals with high attachment anxiety have been reported to find it more difficult to suppress negative emotions and to exaggerate appraisals of threat while individuals with high attachment avoidance employ strategies that seek to deny or suppress negative emotions in response to threat (Cassidy, 1994; Mikulincer, Birnaum, Woddis & Nachmias, 2000; Mikulincer, Dolev & Shaver, 2004). This would mean that individuals with high attachment avoidance are less likely to report high levels of emotional reactivity than are those with high attachment anxiety, which has implications with regard to understanding individual resilience in relation to attachment processes. Individuals high in attachment avoidance may not score highly with regard to emotional reactivity but may remain vulnerable to reductions in their overall resilience resources due to tendencies to distance themselves from others and avoid emotional closeness (Collins & Feeney, 2004).

Attachment anxiety was shown to be significantly correlated with resilience but was not correlated with maltreatment. These results contradict previous research which has found a small but significant correlation between childhood maltreatment and both attachment avoidance and attachment anxiety in an adolescent sample (Wekerle & Wolfe, 1998). One difference may be that Wekerle & Wolfe (1998) gave extra weighting to more serious forms of maltreatment in recognition of the evidence that more severe and sustained abuse can lead to poorer outcomes. The current study did not give weighting to different forms of maltreatment, which may have influenced the

correlation with attachment anxiety, particularly given that different forms of maltreatment may have differential effects on attachment insecurity over time (Muller, Thornback & Bedi, 2012; Trickett & McBride-Chang, 1995). Since attachment anxiety reflects our sense of self-worth and acceptability to others, it is possible that not all types of maltreatment will have a direct impact on attachment anxiety. This process may only be disrupted when maltreatment directly challenges an individual's sense of self-worth, for example, in the case of emotional abuse or neglect. This is supported by research by Riggs & Kaminsky (2010), who found emotional abuse to be the only significant predictor of attachment anxiety in a regression analysis with an adult sample. The current study's small sample size precludes further analysis by maltreatment type but further research is required in order to determine the differential effects of maltreatment type on attachment anxiety.

As mediation analyses did not find a significant indirect effect of attachment anxiety on the relationship between childhood maltreatment and resilience, further exploratory analyses were carried out. These analyses indicated that lower attachment anxiety is significantly associated with higher levels of resilience resource but not when levels of childhood maltreatment are high. This suggests that low attachment anxiety may serve to promote resilience but that high levels of maltreatment disrupt this protective process, resulting in reduced resilience even when attachment anxiety is low. No significant moderating effect of maltreatment history was found in the relationship between attachment anxiety and resilience vulnerability, indicating that maltreatment severity had a reduced impact on resilience vulnerability. The relationship between attachment anxiety and resilience vulnerability remained significant at higher levels of

maltreatment than was the case with resilience resource. This indicates that low attachment anxiety may play a role in supporting resilience across all three domains of the RSCA, as opposed to attachment avoidance, which does not appear to be associated with emotional reactivity.

2.6.2 *Limitations of the study*

2.6.2.1 Sample

The demographics of this sample indicate limited generalizability. Of particular note is that the majority of the sample were female. Additionally, the majority of individuals lived in the 5 least deprived decile codes. Previous socio-economic comparisons have demonstrated that disadvantaged young people are at an increased risk for a range of mental disorders (Boe, Overland, Lundervold & Hysing, 2012; McLaughlin, Costello, Leblanc, Sampson & Kessler, 2012), however, this study did not find a significant correlation between SIMD rank and distress or resilience. This suggests that the current study may not have captured a representative socio-economic sample. It may have been that some of the most socio-economically deprived individuals were excluded on the basis of severe distress or current child protection proceedings, however, data is not available regarding patients in CAMHS who did not meet the study criteria. Another factor which may have influenced this distribution is the consent process for participants under 16 years of age. Previous research has suggested that seeking active parental consent for young people can result in individuals of low socio-economic background being under-represented within research (Courser, Shamblen, Lavraka, Collins & Ditterline, 2009; Shaw, Cross, Thomas & Zubrick, 2014) when compared to

passive parental consent procedures. Analysis of potential non-responder or referrer bias is beyond the scope of the current study, however, it may be beneficial for further research to be carried out within CAMHS to consider the socio-economic distribution of individuals attending services and potential barriers to participation in relevant research studies.

Another limitation of this study is that response rates for participation were not recorded. Opinion on what is an acceptable response rate for similar research varies widely, although Visser, Krosnick, Marquette and Curtin (1996) and Keeter *et al.* (2006) both found that surveys with response rates under 25 per cent were statistically indistinguishable from surveys with response rates of 50 per cent or greater. Nevertheless, it is a limitation of this study that it is not possible to identify how many individuals met the inclusion criteria within CAMHS, how many were approached, and how many declined to participate. This would allow for a better understanding of the representativeness of the sample and any relevant biases. As there was no method of identifying the number of individuals who met the inclusion criteria for this study, it is not possible to determine whether sample biases are representative of referrals to CAMHS or indicate bias within the recruitment process.

2.6.2.2 Sample size

Despite an extended recruitment period, the current study had difficulty in obtaining the expected sample size. Another research project was being carried out within the service at this time, which may have resulted in competition for participant interest and clinician time. It is also possible that there were difficulties for clinicians in prioritising

research. Within CAMHS in Scotland, there is an increasing pressure to achieve targets related to waiting times (Scottish Executive, 2010), which may have resulted in activities outside of usual clinical work becoming de-prioritised. The framework for the provision of CAMHS services within Scotland (Scottish Executive, 2005) is clear that improving the evidence base within CAMHS is an important priority for service development. For this reason, it may be important to address this difficulty within CAMHS services in order to ensure that clinicians are provided with sufficient time to engage with research projects that aim to support their future practice. The implications of this low sample size are that the generalizability of this study to the research population remains limited. The low sample size would also suggest that this study may not have sufficient power to detect an effect, meaning that the reported non-significant results do not necessarily disprove the research hypotheses. Further research may be required in order to establish whether an effect exists which the current study did not have sufficient power to detect.

2.6.2.3 Measures

While this study provides support for the use of the RSCA as a measure of resilience, it remains that this measure places greater emphasis on individual factors than on external factors such as family and community support. This measure has previously been shown to correlate with risk behaviours, behaviour problems and psychopathology (Prince-Embury, 2008; Prince-Embury, 2011; Prince-Embury, 2013), which indicates a degree of validity for the use of this measure to reflect an individual's level of resiliency. However, future research may benefit from including measures that assess the availability of resources at the family and community level that might influence an

individual's ability to negotiate increased adversity in spite of high levels of personal agency, such as family support (Asgeirsdottir *et al.* 2010; Kassis, Artz, Scambor, Scambor & Moldenhauer. 2013) and peer support (Edmond *et al.* 2006; Perkins & Jones 2004).

Additionally, the A-RSQ has had difficulties previously with regards to reliability. For the current study, Cronbach's alpha scores indicated acceptable internal consistency for only two of the attachment prototypes which are used in calculating the attachment dimensions of attachment anxiety and avoidance. This would indicate that the items within these prototypes do not appear to reflect a single construct, thus reducing the reliability of the measure. However, these low scores are to be expected when we consider that the prototype model of attachment has been argued by Griffin and Bartholomew (1994b) to be derived from the two underlying attachment dimensions that were utilised in this study. Therefore, while there are theoretical underpinnings for the utilisation of these prototypes, they may not exist as four unique factors which will result in low scores in measurements of internal consistency. This would mean that internal consistency reliability estimates may not be appropriate for the four subscales within this measure (see Griffin & Bartholomew, 1994a and 1994b for further discussion regarding this measure and the evidence regarding the dimensional measurement of attachment). Despite these difficulties with internal consistency with both the A-RSQ and its adult counterpart, the RSQ, the measure has generally shown moderate test-retest reliability (Scharfe & Bartholomew, 1994) and good convergent validity (Griffin & Bartholomew, 1994b; Henderson, 2011). A recent review of attachment measures suggested that the Adult Attachment Interview had the best

psychometric properties but the feasibility of its use is limited by the resources, time and training required for administration (Ravitz, Maunder, Hunter, Sthankiya & Lancee, 2010). In light of this, the A-RSQ is likely to be an adequate alternative but one must bear these limitations in mind when interpreting results using this measure. Further research using measures with better psychometric properties, or including multiple measures which measure similar constructs, would lead to improved certainty regarding participants' attachment styles and the means by which they are assessed.

2.6.3 Implications of this research

The current study provides initial evidence regarding the nature of resilience following childhood maltreatment. In particular, this study highlights a possible need to improve resilience in maltreated adolescents in order to support improvements in psychological distress. This study provides support for an approach to clinical interventions that emphasises the development of improved competence and individual strengths and goes beyond just addressing current presenting problems (Tedeschi & Kilmer, 2005). There are already several therapeutic interventions which incorporate elements of skills building and the fostering of improved interpersonal relationships (e.g. Interpersonal Therapy: Klerman, Weissman & Rounsaville, 1984; Dialectical Behaviour Therapy: Linehan, 1993; Acceptance and Commitment Therapy: Hayes, Strosahl & Wilson, 1999). However, further research is necessary to clarify the processes by which adolescents can develop improved resources and strengths and how this is best integrated into current clinical practice within CAMHS.

This study also highlights the importance of attachment as a factor through which changes to resilience can occur. These results indicate that maltreatment can result in higher attachment avoidance, leading to reduced resilience. They also show that the lower the attachment anxiety, the better the resultant levels of resilience. This would indicate that an understanding of attachment processes may be important for family members and professionals who seek to support maltreated adolescents. For example, individuals may be more likely to present with discomfort with emotional closeness and a higher desire for self-reliance, which could result in them failing to seek support when needed and rejecting support from professionals when it is offered. If professionals are provided sufficient training to understand the attachment processes which may lead to these behaviours, it is hoped that this will enable services to offer support in a manner which will allow these adolescents to begin to develop more positive relationships with others, resulting in reduced attachment avoidance. While this level of support can be provided through social work or education or even at the family level, it is also important to consider a need for the application of attachment based clinical interventions for these adolescents. Currently, the majority of interventions following maltreatment that incorporate relational aspects have been developed for younger children (Cicchetti, Rogosch & Toth, 2006; Stronach, Toth, Rogosch & Cicchetti, 2013), though attempts have been made to incorporate attachment theory into interventions for adolescents (Toth, Gravener-David, Guild & Cicchetti, 2013). It is clear that attachment processes remain a significant aspect of well-being in adolescence and further research is required to clarify the means by which attachment influences and supports resilience over time.

2.6.4 Conclusions

Mental health services must continue to develop an improved understanding of the ways in which maltreatment influences resilience in adolescence, particularly given the high levels of maltreatment reported in this sample. The generalizability of this study is limited since the majority of the sample were from less deprived backgrounds and were female. This study highlighted difficulties with recruitment within CAMHS that warrant further investigation. In particular, further research is necessary to address potential bias that may exist either with regard to referrals to CAMHS or with regard to supporting young people's participation in research.

The current study indicates that childhood maltreatment can have a significant impact on overall resilience but also provides evidence that certain factors, such as attachment security, might serve to moderate this impact. Clinical interventions that are focussed on improving resilience and interpersonal attachments may serve to support more long-term improvements in psychological distress, however, further research is required to clarify the process by which these factors interact with each other to support positive adaptation.

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The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:

- E-mail address
- Full postal address
- Phone numbers

All necessary files have been uploaded, and contain:

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

Further considerations

- Manuscript has been 'spell-checked' and 'grammar-checked'
- References are in the correct format for this journal
- All references mentioned in the Reference list are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Web)
- Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print, or to be reproduced in color on the Web (free of charge) and in black-and-white in print

- If only color on the Web is required, black-and-white versions of the figures are also supplied for printing purposes

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Authors are responsible for ensuring that manuscripts conform fully to the Publication Manual of the American Psychological Association (6th ed.), including not only reference style but also spelling (see, e.g., the hyphenation rules), word choice, grammar, tables, headings, etc. Spelling and punctuation should be in American English.

Appendix 2 Studies excluded following full text review

	Reference	Reason for exclusion
1	Bell, T., Romano, E., & Flynn, R. J. (2013). Multilevel correlates of behavioral resilience among children in child welfare. <i>Child Abuse & Neglect</i> , 37(11), 1007-1020.	Child sample
2	Brezo, J., Paris, J., Vitaro, F., Hébert, M., Tremblay, R. E., & Turecki, G. (2008). Predicting suicide attempts in young adults with histories of childhood abuse. <i>The British Journal of Psychiatry</i> , 193(2), 134-139.	Adult sample
3	Cicchetti, D., & Rogosch, F. A. (1997). The role of self-organization in the promotion of resilience in maltreated children. <i>Development and psychopathology</i> , 9(04), 797-815.	Child sample
4	Cicchetti, D., & Rogosch, F. A. (2007). Personality, adrenal steroid hormones, and resilience in maltreated children: A multilevel perspective. <i>Development and psychopathology</i> , 19(03), 787-809.	Child sample
5	Cicchetti, D., & Rogosch, F. A. (2012). Gene× Environment interaction and resilience: Effects of child maltreatment and serotonin, corticotropin releasing hormone, dopamine, and oxytocin genes. <i>Development and psychopathology</i> , 24(02), 411-427.	Considers genotypes only

6	Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilience in maltreated children: Processes leading to adaptive outcome. <i>Development and Psychopathology</i> , 5(04), 629-647.	Child sample
7	Cicchetti, D., Rogosch, F. A., & Sturge-Apple, M. L. (2007). Interactions of child maltreatment and serotonin transporter and monoamine oxidase A polymorphisms: depressive symptomatology among adolescents from low socioeconomic status backgrounds. <i>Development and psychopathology</i> , 19(04), 1161-1180.	Considers genotypes only
8	Chun, J., & Chung, Y. (2011). A comparison of path factors influencing depressive symptoms in children of immigrant women and Korean children in South Korea. <i>Children and Youth Services Review</i> , 33(11), 2087-2095.	Considers trajectory of maltreatment only
9	Curtis, W. J., & Cicchetti, D. (2007). Emotion and resilience: A multilevel investigation of hemispheric electroencephalogram asymmetry and emotion regulation in maltreated and nonmaltreated children. <i>Development and psychopathology</i> , 19(03), 811-840.	Child sample
10	Daignault, I. V., & Hébert, M. (2009). Profiles of school adaptation: Social, behavioral and academic functioning in sexually abused girls. <i>Child Abuse & Neglect</i> , 33(2), 102-115.	Child sample
11	Daigneault, I., Hébert, M., & Tourigny, M. (2007). Personal and interpersonal characteristics related to resilient developmental pathways of sexually abused adolescents. <i>Child and adolescent</i>	Review article

	<i>psychiatric clinics of North America</i> , 16(2), 415-434.	
12	Daniels, J. K., Hegadoren, K. M., Coupland, N. J., Rowe, B. H., Densmore, M., Neufeld, R. W., & Lanius, R. A. (2012). Neural correlates and predictive power of trait resilience in an acutely traumatized sample: a pilot investigation. <i>The Journal of clinical psychiatry</i> , 73(3), 327-332.	Adult sample
13	Feldman, B. J., Conger, R. D., & Burzette, R. G. (2004). Traumatic events, psychiatric disorders, and pathways of risk and resilience during the transition to adulthood. <i>Research in human development</i> , 1(4), 259-290	Adult sample – mean age over 18 years.
14	Flores, E., Cicchetti, D., & Rogosch, F. A. (2005). Predictors of resilience in maltreated and nonmaltreated Latino children. <i>Developmental psychology</i> , 41(2), 338.	Child sample
15	Frodl, T., Reinhold, E., Koutsouleris, N., Donohoe, G., Bondy, B., Reiser, M., ... & Meisenzahl, E. M. (2010). Childhood stress, serotonin transporter gene and brain structures in major depression. <i>Neuropsychopharmacology</i> , 35(6), 1383-1390.	Adult sample
16	Geschwind, N., Peeters, F., Jacobs, N., Delespaul, P., Derom, C., Thiery, E., ... & Wichers, M. (2010). Meeting risk with resilience: high daily life reward experience preserves mental health. <i>Acta Psychiatrica Scandinavica</i> , 122(2), 129-138.	Adult sample
17	Gillespie, C. F., Phifer, J., Bradley, B., & Ressler, K. J. (2009). Risk and resilience: genetic and environmental influences on	Review article

	development of the stress response. <i>Depression and anxiety</i> , 26(11), 984-992.	
18	Graham-Bermann, S. A., Gruber, G., Howell, K. H., & Girz, L. (2009). Factors discriminating among profiles of resilience and psychopathology in children exposed to intimate partner violence (IPV). <i>Child Abuse & Neglect</i> , 33(9), 648-660.	Child sample
19	Haskett, M. E., Allaire, J. C., Kreig, S., & Hart, K. C. (2008). Protective and vulnerability factors for physically abused children: Effects of ethnicity and parenting context. <i>Child Abuse & Neglect</i> , 32(5), 567-576.	Child sample
20	Hébert, M., Parent, N., Daignault, I. V., & Tourigny, M. (2006). A typological analysis of behavioral profiles of sexually abused children. <i>Child maltreatment</i> , 11(3), 203-216.	Child sample
21	Howell, K. H., Graham-Bermann, S. A., Czyz, E., & Lilly, M. (2010). Assessing resilience in preschool children exposed to intimate partner violence. <i>Violence and victims</i> , 25(2), 150-164.	Child sample
22	Jaffee, S. R., & Gallop, R. (2007). Social, emotional, and academic competence among children who have had contact with child protective services: Prevalence and stability estimates. <i>Journal of the American Academy of Child & Adolescent Psychiatry</i> , 46(6), 757-765.	Prevalence study only
23	Kaufman, J., Yang, B. Z., Douglas-Palumberi, H., Houshyar, S., Lipschitz, D., Krystal, J. H., & Gelernter, J. (2004). Social supports	Child sample

	and serotonin transporter gene moderate depression in maltreated children. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 101(49), 17316-17321.	
24	Kim, J., & Cicchetti, D. (2006). Longitudinal trajectories of self-system processes and depressive symptoms among maltreated and nonmaltreated children. <i>Child development</i> , 77(3), 624-639.	Child sample
25	Kim, J., Cicchetti, D., Rogosch, F. A., & Manly, J. T. (2009). Child maltreatment and trajectories of personality and behavioral functioning: Implications for the development of personality disorder. <i>Development and psychopathology</i> , 21(03), 889-912.	Considers trajectory of maltreatment only
26	Leve, L. D., Fisher, P. A., & Chamberlain, P. (2009). Multidimensional treatment foster care as a preventive intervention to promote resiliency among youth in the child welfare system. <i>Journal of personality</i> , 77(6), 1869-1902.	Review article
27	Manly, J. T., Kim, J. E., Rogosch, F. A., & Cicchetti, D. (2001). Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. <i>Development and psychopathology</i> , 13(04), 759-782.	Child sample.
28	Nugent, N. R., Saunders, B. E., Williams, L. M., Hanson, R., Smith, D. W., & Fitzgerald, M. M. (2009). Posttraumatic stress symptom trajectories in children living in families reported for family violence. <i>Journal of traumatic stress</i> , 22(5), 460-466.	Considers trajectory of PTSD only
29	Pejović-Milovančević, M., Tenjović, L., Ispanović, V., Mitković,	Describes profiles

	M., Radosavljev-Kirčanski, J., Minčič, T., ... & Lečić-Toševski, D. (2014). Psychopathology and resilience in relation to abuse in childhood among youth first referred to the psychiatrist. <i>Vojnosanitetski pregled</i> , 71(6), 565-570.	of resilience but not predictors.
30	Reyes, C. J. (2008). Exploring the relations among the nature of the abuse, perceived parental support, and child's self-concept and trauma symptoms among sexually abused children. <i>Journal of child sexual abuse</i> , 17(1), 51-70.	Sample below mean age of 12.
31	Roy, A., Carli, V., & Sarchiapone, M. (2011). Resilience mitigates the suicide risk associated with childhood trauma. <i>Journal of affective disorders</i> , 133(3), 591-594.	Adult sample
32	Sanders, J., Munford, R., Liebenberg, L., & Ungar, M. (2014). Multiple service use: The impact of consistency in service quality for vulnerable youth. <i>Child abuse & neglect</i> , 38(4), 687-697.	Maltreatment included as a co-variate but not focus of research.
33	Schneider, M. W., Ross, A., Graham, J. C., & Zielinski, A. (2005). Do allegations of emotional maltreatment predict developmental outcomes beyond that of other forms of maltreatment?. <i>Child Abuse & Neglect</i> , 29(5), 513-532.	Child sample. Not assessing resilience factors.
34	Schultz, D., Tharp-Taylor, S., Haviland, A., & Jaycox, L. (2009). The relationship between protective factors and outcomes for children investigated for maltreatment. <i>Child Abuse & Neglect</i> , 33(10), 684-698.	Child sample

35	Seok, J. H., Lee, K. U., Kim, W., Lee, S. H., Kang, E. H., Ham, B. J., ... & Chae, J. H. (2012). Impact of early-life stress and resilience on patients with major depressive disorder. <i>Yonsei medical journal</i> , 53(6), 1093-1098.	Adult sample
36	Simon, V. A., Feiring, C., & McElroy, S. K. (2010). Making meaning of traumatic events: Youths' strategies for processing childhood sexual abuse are associated with psychosocial adjustment. <i>Child maltreatment</i> , 15(3), 229-241.	Used qualitative approaches to review methods of processing maltreatment
37	Spratt, E. , Friedenberg, S. , LaRosa, A. , Bellis, M. , Macias, M. , Summer, A. , Hulsey, T. , Runyan, D. & Brady, K. (2012). The Effects of Early Neglect on Cognitive, Language, and Behavioral Functioning in Childhood. <i>Psychology</i> , 3, 175-182.	Considers trajectory of maltreatment only
38	Toth, S. L., & Cicchetti, D. (1996). Patterns of relatedness, depressive symptomatology, and perceived competence in maltreated children. <i>Journal of consulting and clinical psychology</i> , 64(1), 32.	Child sample
39	van der Werff, S. J., Pannekoek, J. N., Veer, I. M., van Tol, M. J., Aleman, A., Veltman, D. J., ... & van der Wee, N. J. (2013). Resilience to childhood maltreatment is associated with increased resting-state functional connectivity of the salience network with the lingual gyrus. <i>Child Abuse & Neglect</i> , 37(11), 1021-1029.	Adult sample. Considers neural correlates only

40	Vural, P., Hafizoğlu, Ş., Türkmen, N., Eren, B., & Büyükuysal, Ç. (2012). Perceived parental acceptance/rejection and psychopathology in a group of sexually abused children/adolescents. <i>Medicinski Glasnik</i> , 9(2).	Not assessing resilience factors
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Appendix 3 Operationalisation of quality criteria

Operationalisation of Quality Criteria

1 – Study addressing a clear and focussed question. Clearly stated aims and hypotheses.

Well covered	The aims and hypotheses of the study are directly addressed and well described.
Adequately addressed	The aims and hypotheses are not clearly described and may need to be inferred from the study design.
Poorly addressed	Difficult to determine goals of the study. Question is not clear.
Not addressed	The research question and hypotheses are not addressed.
Not reported	The research question and hypotheses are not reported.
Not applicable	Not applicable to this study.
Notes	

**2 – Is the study design appropriate for addressing the study question?
(longitudinal = 2; cross-sectional = 1)**

Well covered	The study design is appropriate for the research question and was addressed using a longitudinal study.
Adequately addressed	The study design is appropriate for the research question and was addressed using a cross-sectional study.
Poorly addressed	There is not a clearly addressed link between the research question and the chosen design.
Not addressed/ reported	The choice of design is not addressed/ reported
Not applicable	Not applicable to this study.

3 – Is the population being studied clearly described?

Well covered	Research population to be studied is clearly defined and described.
Adequately addressed	Research population is defined and described but not as clearly.
Poorly addressed	Poor description of the research population.
Not addressed/ reported	Research population not addressed.
Not applicable	Not applicable to this study.

4 -Is the recruitment procedure clearly described and appropriate?

Well covered	Explicit and appropriate inclusion and exclusion criteria for sampling the described research population. Method of recruitment well designed, well reported and appropriate.
Adequately addressed	Criteria and methods of recruitment are appropriate but not as well described.
Poorly addressed	Inclusion and exclusion criteria either not described well or not appropriate. Unclear or inappropriate recruitment methods.
Not addressed/ reported	Inclusion/exclusion criteria not addressed and/ or recruitment method not described.
Not applicable	Not applicable to this study.

5 – Is there a sufficient response rate?

Well covered	Response rate is reported and is greater than 70%
Adequately addressed	Response rate is reported and is greater than 50%
Poorly addressed	Response rate is not clearly reported or is lower than 50%
Not addressed/ reported	Response rate is not addressed/ reported.
Not applicable	Not applicable for this study.

6 –Is the concept of resilience clearly defined and an appropriate measurement of resilience used?

Well covered	The concept of resilience is clearly defined and this definition is used to determine an appropriate measurement for assessing resilience in the sample.
Adequately addressed	The concept of resilience is defined but without sufficient detail or without clearly establishing the appropriateness of the measurement of resilience.
Poorly addressed	Concept of resilience is not well defined or the measurement used is not appropriate.
Not addressed/ reported	Definition of resilience and appropriateness of measurement is not addressed.
Not applicable	Not applicable for this study.

7 – Are the measures used reliable and valid for use with the study population?

Well covered	Psychometric properties of outcomes measures are well reported and demonstrate high validity and reliability. Outcome measure is standardised.
Adequately addressed	Psychometric properties are acceptable and validity and reliability is evident. Outcome measure is less standardised.
Poorly addressed	Psychometric properties have low validity and reliability or the measure is not standardised.

Not addressed/ reported	Psychometric properties are not addressed.
Not applicable	Not applicable for this study.

8 – Are potential confounding variables accounted for?

Well covered	Potential confounding variables are clearly identified and described. These variables are then controlled or accounted for within the analysis.
Adequately addressed	Potential confounding variables are identified but not as clearly described or variables are not as well controlled for within analysis.
Poorly addressed	Potential confounding variables are not well described and/or not well controlled for.
Not addressed/ reported	Confounding variables are not addressed.
Not applicable	Not applicable for this study.

9 – Are the statistical analyses appropriate and p values, confidence intervals and effect sizes reported where appropriate?

Well covered	The analysis used is appropriate for the study design. The analysis is described in sufficient detail such that statistical significance and descriptive information is clearly presented. Confidence intervals, p-values and effect sizes are reported where appropriate.
Adequately addressed	The analysis is appropriate but the details of the analysis are less well covered.
Poorly addressed	The method of analysis used is not well considered and does not provide the best interpretation of the results of the study. The p-values, effect sizes and confidence intervals may have been mentioned but are not sufficient in this case.
Not addressed/ reported	There has not been any quantitative analysis used in this case, findings are inconclusive regarding statistical significance.
Not applicable	Not applicable for this study.

10 – Does the study have sufficient power?

Well covered	A priori power calculation undertaken using reasonable effect size estimation and is clearly reported. Sufficient sample size is achieved in order to meet power of 0.8.
Adequately addressed	Sample size is adequate for statistical power but a priori power calculation is either not carried out or carried out using arbitrary effect size estimation
Poorly addressed	Power calculation is completed however effect size estimation is not mentioned or sufficient sample size is not met. Or no reported power calculation and post hoc calculation is below 0.8.

Not addressed/ reported	Power calculation is not completed or not reported and not enough information is provided for post hoc calculation.
Not applicable	Not applicable to this study.

11 – Are the overall results clearly summarised and discussed?

Well covered	The results are clearly discussed and summarised with reference made to the study question and hypotheses.
Adequately addressed	The results are discussed and summarised but not as well and without clear reference to initial hypotheses.
Poorly addressed	The results are poorly summarised and not well discussed.
Not addressed/ reported	Overall results are not discussed or summarised.
Not applicable	Not applicable for this study.

12 – Are generalizability, limitations and implications of the study findings clearly discussed?

Well covered	Generalisability, limitations and implications of the results are all clearly discussed with specific reference to aspects of the study that are relevant in considering these factors.
Adequately addressed	Generalisability, limitations and implications of the results are discussed but not as well.
Poorly addressed	Generalisability, limitations and implications of the results are poorly addressed.
Not addressed/ reported	Generalisability, limitations and implications of the results are not addressed.
Not applicable	Not applicable to this study.

Appendix 4 Research Ethics Approval

Amended 27/08/2013

EoSRES



Research Ethics Service

East of Scotland Research Ethics Service (EoSRES) REC 2

(formerly Tayside Fife & Forth Valley REC)
Tayside Medical Sciences Centre (TASC)
Residency Block C, Level 3
Ninewells Hospital & Medical School
George Pirie Way
Dundee DD19SY

Miss Caroline Smith
Trainee Clinical Psychologist
NHS Tayside
Centre for Child Health
19 Dudhope Terrace
Dundee
DD3 6HH

Date: 23 August 2013
Your Ref:
Our Ref: LR/13/ES/0079
Enquiries to: Mrs Lorraine Reilly
Direct Line: 01382 383878
Email: eosres.tayside@nhs.net

Dear Miss Smith

Study title:	Psychological Distress Following Childhood Maltreatment: The Mediating Roles of Attachment and Resilience
REC reference:	13/ES/0079
Protocol number:	2
IRAS project ID:	116086

Thank you for your letter of 09 August 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a sub-committee of the REC. A list of the sub-committee members is attached.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator Mrs Lorraine Reilly, lorraine.reilly@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).



Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Evidence of insurance or indemnity		17 July 2012
Evidence of insurance or indemnity		17 July 2012
Evidence of insurance or indemnity		24 October 2012
GP/Consultant Information Sheets	3	22 July 2013
Investigator CV		
Other: Opt in slip	1	24 May 2013
Other: Referral Form	2	19 April 2013
Other: CV - Professor Kevin Power		16 October 2012
Other: CV - Dr Noel.		
Participant Consent Form:	4	08 August 2013
Participant Consent Form: Parent	5	08 August 2013
Participant Information Sheet	5	14 June 2013
Participant Information Sheet: After Participation	2	17 June 2013
Participant Information Sheet: Clinician	4	08 August 2013
Participant Information Sheet: participants under 16	5	08 August 2013
Participant Information Sheet: Participant	6	08 August 2013
Protocol	4	08 August 2013
Questionnaire: Childhood Trauma		
Questionnaire: Resiliency Scales for Children and Adolescents		



Questionnaire: ARSQ		
Questionnaire: YP CORE		
Questionnaire: Demographic	3	22 July 2013
REC application		17 June 2013
Response to Request for Further Information		09 August 2013

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

13/ES/0079:	<i>Please quote this number on all correspondence</i>
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We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

Yours sincerely



pp for
Dr Anthony Davis
Vice-chair

eosres.tayside@nhs.net

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments
"After ethical review – guidance for researchers"

Copy to: Miss Marianne Laird
NHS Tayside R&D office



East of Scotland Research Ethics Service REC 2
Attendance at Sub-Committee of the REC meeting on 22 August 2013

Also in attendance:

Name	Position (or reason for attending)
Mrs Lorraine Reilly	Senior Co-ordinator

Written comments received from:

Name	Position
Dr Anthony Davis	Consultant Anaesthetist, Vice-chair
Mrs Gail Watson	Senior Clinical Research Associate (SCRA)



Appendix 5 Research and Development Management

Approval



27 August 2013

Miss Caroline Smith
Trainee Clinical Psychologist
NHS Tayside
Centre for Child Health
19 Dudhope Terrace
Dundee
DD3 6HH

Dear Miss Smith,

R & D MANAGEMENT APPROVAL - TAYSIDE

Title: Psychological Distress Following Childhood Maltreatment: The Mediating Roles of Attachment and Resilience.

Chief Investigator: Caroline Smith

Principal Investigator: Caroline Smith

Tayside Ref: 2013PZ06

NRS Ref: N/A

REC Ref: 13/ES/0079

EudraCT Ref: N/A

CTA Ref: N/A

Sponsor(s): University of Edinburgh

Funder(s): Unfunded

Many thanks for your application to carry out the above project here in NHS Tayside. I am pleased to confirm that the project documentation (as outlined below) has been reviewed, registered and Management Approval has been granted for the study to proceed locally in Tayside.

Approval is granted on the following conditions:-

- ALL Research must be carried out in compliance with the Research Governance Framework for Health & Community Care, Health & Safety Regulations, data protection principles, statutory legislation and in accordance with Good Clinical Practice (GCP).
- All amendments to be notified to TASC R & D Office.
- All local researchers must hold either a Substantive Contract, Honorary Research Contract, Honorary Clinical Contract or Letter of Access with NHS Tayside where required (http://www.nihr.ac.uk/systems/Pages/systems_research_passports.aspx).
- TASC R & D Office to be informed of change in Principal Investigator, Chief Investigator or any additional research personnel locally.

Version 3 – 15/03/2012

- Notification to TASC R & D Office of any change in funding.
- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until destruction of this data.
- All eligible studies will be added to the UKCRN Portfolio <http://public.ukcrn.org.uk/>. Recruitment figures for eligible studies must be recorded onto the Portfolio every month: This is the responsibility of the lead UK site. If you are the lead, or only, UK site, we can provide help or advice with this. For information, contact Charles Weller – (01382) 383822 – charles.weller@nhs.net or Liz Livingstone – (01382) 383872 – elivingstone@nhs.net.
- Annual reports are required to be submitted to TASC R & D Office with the first report due 12 months from date of issue of this management approval letter and at yearly intervals until completion of the study.
- Notification of early termination within 15 days or End of Trial within 90 days followed by End of Trial Report within 1 year to TASC R & D Office.
- You may be required to assist with and provide information in regard to audit and monitoring of study.

Please note you are required to adhere to the conditions, if not, NHS management approval may be withdrawn for the study.

Approved Documents

Document	Version	Date
Protocol	4	08/08/13
IRAS R & D Form		
SSI Form		
PIS	5	14/06/13
PIS after participation	2	17/06/13
PIS clinician	4	08/08/13
PIS participants under 16	5	08/08/13
PIS participant	6	08/08/13
Consent	4	08/08/13
Consent parent	5	08/08/13
Questionnaire Childhood trauma		
Questionnaire Resiliency Scales for Children & Adolescents		
Questionnaire ARSQ		
Questionnaire YP CORE		
Demographic questionnaire	3	22/07/13
Opt in slip	1	24/05/13
Referral form	2	19/04/13
Insurance		24/10/12
Insurance letter		17/07/12
Insurance policy		17/07/12
REC favourable opinion		23/08/13 amended 27/08/13
REC provisional		10/07/13
CV – Penelope Noel		
CV – Kevin Power		16/10/12
CV – Caroline Smith		

May I take this opportunity to wish you every success with your project.

Please do not hesitate to contact TASC R & D Office should you require further assistance.

Yours sincerely,



Elizabeth Coote
R&D Manager

TAyside medical Science Centre (TASC)
Ninewells Hospital & Medical School
TASC Research & Development Office
Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY
Email: liz.coote@nhs.net
Tel: 01382 383876 Fax: 013812 740122

c.c.

Sponsor Rep
Prof Kevin Power

Appendix 6 Correspondence from Research Ethics Committee

EoSRES



Research Ethics Service

East of Scotland Research Ethics Service (EoSRES) REC 2

Tayside Medical Sciences Centre (TASC)
Residency Block C, Level 3
Ninewells Hospital & Medical School
George Pirie Way
Dundee DD1 9SY

Miss Caroline Smith
Trainee Clinical Psychologist
NHS Tayside
Centre for Child Health
19 Dudhope Terrace
Dundee
DD3 6HH

Date: 10 July 2013
Your Ref:
Our Ref: LR/DL/13/ES/0079
Enquiries to: Mrs Lorraine Reilly
Extension: Ninewells extension: 83878
Direct Line: 01382 383878
Email: eosres.tayside@nhs.net

Dear Miss Smith

Study Title: Psychological Distress Following Childhood Maltreatment: The Mediating Roles of Attachment and Resilience
REC reference: 13/ES/0079
Protocol number: 2
IRAS project ID: 116086

The Research Ethics Committee reviewed the above application at the meeting held on 02 July 2013. Thank you, Dr Sheena McDonald and Professor Kevin Power for attending to discuss the application.

Documents reviewed

The documents reviewed at the meeting were:

Document	Version	Date
Evidence of insurance or indemnity		17 July 2012
Evidence of insurance or indemnity		17 July 2012
Evidence of insurance or indemnity		24 October 2012
GP/Consultant Information Sheets	2	14 June 2013
Investigator CV		
Other: Opt in slip	1	24 May 2013
Other: Referral Form	2	19 April 2013
Participant Consent Form: Patient	3	14 June 2013
Participant Consent Form: Parent	4	14 June 2013
Participant Information Sheet	5	14 June 2013
Participant Information Sheet: After Participation	2	17 June 2013
Participant Information Sheet: participants under 16	4	14 June 2013
Participant Information Sheet: Clinician	3	07 June 2013
Protocol	3	14 June 2013
Questionnaire: Childhood Trauma		



Document	Version	Date
Questionnaire: Resiliency Scales for Children and Adolescents		
Questionnaire: ARSQ		
Questionnaire: YP CORE		
Questionnaire: Demographic	2	19 April 2013
REC application		17 June 2013

Provisional opinion

The Committee is unable to give an ethical opinion on the basis of the information and documentation received so far. Before confirming its opinion, the Committee requests that you provide the further information set out below.

Authority to consider your response and to confirm the Committee's final opinion has been delegated to a meeting of the sub-committee of the REC.

Further information or clarification required

The following points were clarified. There is no requirement to respond unless there are any inaccuracies:

1. With regards to the Participant Information Sheet for participants younger than 16 years, the Committee asked for clarification whether or not the child was aware they were considered to have been are maltreated? And if so how would this be resolved? If not, might children be distressed to discover this when presented with information about the study? Dr McDonald informed the Committee that all Adolescents have undergone a thorough assessment process by CAMHS before being considered thus ensuring they met the criteria. Dr McDonald added that not all participants recruited to the study have a history of maltreatment. Professor Power agreed to consider different wording rather than using the term 'maltreatment'.
2. The Committee were concerned that children delivering participant information sheet to parents/carers might potentially cause distress to parents/carers or result in difficulty between the child and their parent/carer. could have a negative impact towards to child – Miss Smith confirmed that the guidelines for Scottish Children's Research Network regards children aged over 13 years can consent for themselves and obtain parental assent. Miss Smith stated she would like to have parental consent as well as this would help with understanding the dynamics of the parent/carer and child relationship. Key workers will carefully select children to ensure that those most likely to be at risk will not be recruited. Any dissent between parent and child will be identified with the Key Worker. Professor Power informed the committee that children who could be subjected to maltreatment will be excluded. Professor Power agreed to submit a copy of the Key Worker's briefing information.
3. The Committee asked for further clarification as to why personal data is to be kept for 3 years or more – Miss Smith clarified that the length of time for data to be kept was based on the British Psychological Society guidance. Miss Smith went on to confirm that only anonymised data would be kept. Professor Power added that there may be some time before the data is published after the study is completed and written up.
4. The Committee asked if it would be feasible to recruit 85 participants in the time constraints of the study, and what would be the contingency plan if this was the case? Dr McDonald informed the Committee they do not see any issues in recruiting 85 participants as at present the service has 1200 patients referred per year and this number is increasing by 30% over Tayside. Dr McDonald went on to explain the service is split into three sections Perth & Kinross, Dundee and Angus and they are hoping to recruit approximately 30 participants from each team. The contingency plan is built into the statistical analysis which



works about 71 participants required to conduct the study. If it's not possible to recruit this number from Tayside is not possible, a substantial amendment will be submitted, assuming agreement can be obtained from colleagues in Fife. The Committee enquired about the demographic questionnaire as they felt this was not appropriate because the researchers propose to collect data from participants who have specifically opted out of participation in the study? The researchers informed the Committee that the demographic questionnaire would provide the representative data required for the viva and publication. The researchers agreed that instead of including data from participants who opt out they may be able to compare the demographics of the sample with those of all patients referred to the service by seeking Caldicott Guardian permission to access routinely collected data within the CAMHS service.

5. The Committee asked for further information with regards to the Participant Information Sheet (PIS) as they felt that it was not as age appropriate as it might be and suggested that the researcher revisited the participant information sheet and possibly pilot it with a group from the population to be studied. The Committee also requested that being able to withdraw from the study was made explicit in the PIS– Miss Smith agreed to amend the information sheet
6. The Committee asked for clarification as to whether the parent/carers can attend the interview with the child? Miss Smith clarified that there was no reason why they could not be present at the interview if the child agreed. Dr McDonald elaborated that some children attend on their own, some parents attend and wait in the waiting area, and some parents accompany their child throughout their appointment
7. The Committee wondered about the risk/benefit ratio of the study? Such as the risk of being asked about distressing issues. Professor Power clarified that a certain degree of risk was unavoidable if this population were to be studied and that a greater risk might be failing to study this population and indeed there could be a risk in not asking about sensitive subjects. The researchers advised the benefit anticipated was an improvement in practice through better understanding the needs of the participants studied. The researchers emphasised the findings of this study could have benefits in terms of advancing evidence based practice, and in the long term could improve service by looking at new practices.

The following points require to be addressed by letter and submission of revised documentation where requested.

Please note that there is no requirement to amend your application form.

1. Regarding the Application Form:
 - A27-1 who will carry this out and what resources will be used? "Clinicians will be given an information sheet regarding study". The Committee asked if you could submit a copy of the information sheet.
 - A69-1 the Committee asked for clarification as to the start date of the study as it states 08 July 2013.
2. Regarding the Participant Information Sheet (PIS)
 - The Committee requested that the researchers revisit the PIS for under 16s and submit an amended copy.
 - The Committee also requested that being able to withdraw from the study was made explicit in the PIS.



- Please adapt and insert the appropriate paragraph below under 'Who has reviewed the study?'

'The East of Scotland Research Ethics Committee REC 2, which has responsibility for scrutinising all proposals for medical research on humans in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. It is a requirement that your records in this research, together with any relevant records, be made available for scrutiny by monitors from the University of Edinburgh and NHS Tayside, whose role is to check that research is properly conducted and the interests of those taking part are adequately protected.'

Please submit a revised Participant Information Sheet, which should include a new version number and new full date.

3. Regarding the Consent Form

- Within statement 6 the Committee requested that regulatory authorities be removed.

Please submit a revised Consent Form, which should include a version number and full date as a 'footer' and the new date and version number of the Participant Information Sheet in Statement 1

4. Other

- The Committee requested copies of CV's for Professor Powers and Dr McDonald
- The Committee requested that more information to be inserted into GP letter with regards to the study.
- The Committee requested The researchers re-consider the use of the word 'maltreated' in documents that will be viewed by participants and ensure it is clear not all recruited to the study are considered to have been maltreated.

If you would find it helpful to discuss any of the matters raised above or seek further clarification from a member of the Committee, you are welcome to contact Mrs Diane Leonard, Assistant Co-ordinator at diane.leonard@nhs.net.

When submitting your response to the Committee, please send revised documentation where appropriate underlining or otherwise highlighting the changes you have made and giving revised version numbers and dates.

If the committee has asked for clarification or changes to any answers given in the application form, please do not submit a revised copy of the application form; these can be addressed in a covering letter to the REC.

The Committee will confirm the final ethical opinion within a maximum of 60 days from the date of initial receipt of the application, excluding the time taken by you to respond fully to the above points. A response should be submitted by no later than 09 August 2013.

Membership of the Committee

The members of the Committee who were present at the meeting are listed on the attached sheet.



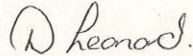
Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

13/ES/0079

Please quote this number on all correspondence

Yours sincerely



Per **Ms Tara Graham**
Chair

Email: eosres.tayside@nhs.net

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments.

Copy to: Miss Marianne Laird
NHS Tayside R&D Office



Appendix 7 Demographic & Research Questionnaires

Note: RSCA and CTQ are subject to copyright by Pearson Assessment and so are not included in these appendices. Copies of each of these measures will be brought to viva for examiners to view.

Demographic Questionnaire

Version 3 (22.07.13)

Factors Affecting Mental Health in Young People

Demographic Questionnaire

Gender: Male ☐ Female ☐

Age: _____

Post Code: _____

Reason for referral to CAMHS (if known): _____

Ethnic Background:

Choose one section from A – E, then tick the appropriate box for the patient's cultural background.

A: White

Scottish ☐ Irish ☐ Other British ☐ Any other White Background ☐

B: Mixed

Any mixed background ☐

C: Asian, Asian Scottish, Asian British

Pakistani ☐ Indian ☐ Bangladeshi ☐ Any other Asian background ☐

D: Black, Black Scottish, Black British

Caribbean ☐ African ☐ Any other Black background ☐

E Other ethnic background

☐ Any other background *please specify* _____



YP-CORE

Assistance given? ☐
(If yes, please tick)

Site ID	<input type="text"/>	Male	<input type="checkbox"/>
Client ID	<input type="text"/>	Female	<input type="checkbox"/>
Letters only	Numbers only	Age	<input type="text"/>
Therapist ID	<input type="text"/>	Stage Completed	
Subcodes	<input type="text"/>	S Screening	Stage
Numbers only (1)	Numbers only (2)	R Referral	
Date form given	<input type="text"/>	A Assessment	Episode
d d / m m / y y y y	<input type="text"/>	F First Therapy Session	
		P Pre-therapy (unspecified)	
		D During Therapy	
		L Last Therapy Session	
		X Follow up 1	
		Y Follow up 2	

These questions are about how you have been feeling OVER THE LAST WEEK.
Please read each question carefully. Think how often you have felt like that in
the last week and then put a cross in the box you think fits best.
Please use a dark pen (not pencil) and mark clearly within the boxes.

OVER THE LAST WEEK...

	Not at all	Only occasionally	Sometimes	Often	Most or all of the time
1. I've felt edgy or nervous	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
2. I haven't felt like talking to anyone	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
3. I've felt able to cope when things go wrong	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
4. I've thought of hurting myself	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
5. There's been someone I felt able to ask for help	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
6. My thoughts and feelings distressed me	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
7. My problems have felt too much for me	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
8. It's been hard to go to sleep or stay asleep	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
9. I've felt unhappy	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
10. I've done all the things I wanted to	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0

Thank you for answering these questions

Copyright CORE System Trust
Supported by www.coreims.co.uk

Adolescent Relationship Scales Questionnaire

Think about all of the people in your life.

Now read each of the following statements and rate how much it describes your feelings using the 7-point scale, ranging from "not at all like me" to "very like me".

Not at all like me	1	2	3	4	5	6	7	Very like me
<hr/>								

	Score
1. I find it hard to count on other people.	_____
2. It is very important to me to feel independent.	_____
3. I find it easy to get emotionally close to others.	_____
4. I worry that I will be hurt if I become too close to others.	_____
5. I am comfortable without close emotional relationships.	_____
6. I want to be completely emotionally close with others.	_____
7. I worry about being alone.	_____
8. I am comfortable depending on other people.	_____
9. I find it difficult to trust others completely.	_____
10. I am comfortable having other people depend on me.	_____
11. I worry that others don't value me as much as I value them.	_____
12. It is very important for me to do things on my own.	_____
13. I'd rather not have other people depend on me.	_____
14. I am kind of uncomfortable being emotionally close to people.	_____
15. I find that people don't want to get as close as I would like.	_____
16. I prefer not to depend on people.	_____
17. I worry about having people not accept me.	_____

Appendix 8 Participant and Parent Information Sheets

Participant Information Sheet

Version 6 (08.08.13)



Factors affecting mental health in young people



My name is Caroline Smith.

I am training to be a Clinical Psychologist at the University of Edinburgh and work for NHS Tayside.

I am completing a research project as part of my training and would like to invite you to take part.

Before you decide if you want to take part, it's important to understand why we are doing this research and what you will have to do if you want to take part. Please read this leaflet carefully and talk about it with anyone you wish.

If there are any bits that you don't understand, please ask questions. You can ask the person who has invited you to take part or you can contact me via telephone (01382 346565) or email (casmith@nhs.net).

Why is this study being carried out?

Previous studies have suggested that a child's upbringing can affect how well they manage difficulties as they grow up. I will be looking at how young people's upbringing affects how they relate to other people and their ways of coping with situations. I will then be considering how these factors might affect young people's mental health.

Why have I been invited to take part?

We are asking all young people aged 13 – 17 who attend CAMHS to think about taking part.

What will I be asked to do?

- Fill out a consent form that tells us you understand the study and you want to take part.
- Answer a set of 4 questionnaires with either myself or the person who invited you to take part. This should take around 25 minutes. These questionnaires ask about your mood, the way you relate to

Page 1 of 4

other people, your ways of coping with situations and your upbringing.

- Your key worker will also fill in a short demographic questionnaire. This asks about your age, gender, ethnicity, postcode and reason for referral to CAMHS.

You will be free to take a break at any time or to decide that you no longer wish to take part. There will always be someone with you while you fill in the questionnaires. Your parent or guardian can also stay with you, if you want them to.

What are the possible risks of taking part?

This study involves answering sensitive questions about mental health and about your upbringing. Young people have not found these questions upsetting in previous studies. However, there will always be someone with you while you complete the questionnaires so that you can talk about any issues or feelings that come up.

What are the possible benefits of taking part?

We hope this research will help us to better understand the factors that can affect young people's mental health. This may help us to support other young people like you who are being seen within CAMHS.

Do I have to take part?

No. It is completely up to you if you wish to take part or not. You can withdraw from the study at any time. **The support and help you receive from CAMHS will not be affected if you decide at any time that you do not want to take part.** If you decide during the study that you don't want to take part, you don't have to give a reason for this. Your information would then be removed and destroyed.

If you do wish to take part, we will ask you to sign a consent form. The consent form is a way of making sure that you know what you have agreed to.

If you are under 16, we will also ask your parent or guardian to sign a consent form. This is to make sure that they understand what we will be asking you to do and that they agree to you taking part.

What will happen to my information?

If you decide to take part in the study, we will tell your GP that you are taking part. We will keep all of your answers anonymous and will not share them with anyone. We will not put your name on any of your answers and we will keep them separate from your consent form.

If your answers cause us any concern that your mood is very low, or that you or another young person might be at risk of harm, we will follow the same steps that we would take as part of normal CAMHS practice. This may involve contacting someone who can help you further. It may also involve contacting your parent/guardian. If we have any concerns, we will always try to talk to you before we do anything.

Will I find out the results of the study?

If you want to know the results of the study, we will send out a summary of the results to your home address or email address. You can let us know that you want us to do this by ticking a box on the consent form and giving us your contact details.

Who is organising this research?

I am carrying out this research as part of my training for the University of Edinburgh Clinical Psychology Doctorate. Dr Penelope Noel (Clinical Psychologist) and Professor Kevin Power (Clinical Psychologist) are supervising me within NHS Tayside. I am also being supervised by Dr Matthias Schwannauer (Clinical Psychologist) at the University of Edinburgh.

Who has reviewed the study?

Before any research goes ahead, it has to be checked by a Research Ethics Committee. They make sure that the research is fair and ethical. The East of Scotland Research Ethics Committee REC 2 has checked and approved this study. The University of Edinburgh and NHS Tayside

may also review participant records to check that we are carrying out the research properly and that we are protecting your rights at all times.

I have questions/worries about the study – what should I do?

If you have any questions or worries about the study you can contact me on the details above. If you would prefer to speak to someone who is not involved with the study, you can contact: Dr Sheenagh MacDonald, Consultant Clinical Psychologist, on 01382 346565.

If any problems arise during this study and you would like to make a complaint, you can contact:

Patient Liaison Manager
Complaints office
Ninewells Hospital
Dundee
DD1 9SY
Telephone: 0800 027 5507

Please keep hold of this sheet and have a think about whether you would like to take part. Thank you very much for taking the time to read this.

Factors affecting mental health in young people

Dear Parent/Guardian,

I am writing to you because your child has said that they are interested in taking in the above study. We ask that all young people under the age of 16 have written consent from a parent or guardian before taking part. Before you decide if you want to give consent, I would like to tell you why we are doing this research and what your child will have to do.

If there are any bits that you don't understand, please ask questions. You can ask the person who has invited your child to take part or you can contact me via telephone (01382 346565) or email (casmith@nhs.net).

Why is this study being carried out?

Previous studies have suggested that a child's upbringing can affect how well they manage difficulties as they grow up. I will be looking at how young people's upbringing affects how they relate to other people and their ways of coping with situations. I will then be considering how these factors might affect young people's mental health.

Why has my child been invited to take part?

We are asking all young people aged 13 – 17 who are currently open to CAMHS to think about taking part.

What will my child be asked to do?

We will ask your child to sign a consent form and answer a set of questionnaires. This should take around 25 minutes. These questionnaires ask about your child's mood, the way they relate to other people, their ways of coping with situations and their upbringing.

Your child's key worker will also fill in a short demographic questionnaire. This asks about your child's age, gender, ethnicity, postcode and reason for referral to CAMHS.

Your child will be free to take a break at any time or to change their mind about taking part. There will always be someone with your child while they fill in the questionnaires. You are also welcome to attend, if your child would like you to be there.

What are the possible risks of taking part?

This study involves your child answering sensitive questions about mental health and about their upbringing. Young people have not found these questions upsetting in previous studies. However, there will always be someone with your child while they fill in the questionnaires so that they can talk about any issues or feelings that come up.

What are the possible benefits of taking part?

We hope this study will help us to have a better understanding of the factors that can affect young people's mental health. This may help us to support other young people like your child who are being seen within CAMHS.

Does my child have to take part?

No. It is completely up to you and your child if they wish to take part or not. They are free to withdraw at any time. **The support and help your child receives from CAMHS will not be affected if they decide at any time that they do not want to take part.** If they decide during the study that they no longer want to take part, they don't have to give a reason for this. We would then remove and destroy their study information.

What will happen to my child's information?

If your child decides to take part, we will tell their GP that they are taking part in the study. We will keep your child's answers anonymous and will not share them with anyone. We will not put your child's name on their answers and we will keep their answers separate from the consent forms.

If your child's answers cause us any concern that their mood is very low, or that they or another young person are at risk of harm, we will follow the same steps that we would take as part of normal CAMHS practice. This may involve contacting someone who can help your child further and may involve contacting you as their parent/guardian. If we have any concerns, we will always try to talk to your child before we do anything.

Will my child find out the results of the study?

If you or your child wish to know the results of the study, I will send out a summary of the results to your home address or email address. You or your child can let me know that you want me to do this by ticking a box on the consent form and providing contact information.

Who is organising this research?

I am carrying out this research as part of my training for the University of Edinburgh Clinical Psychology Doctorate. Dr Penelope Noel (Clinical Psychologist) and Professor Kevin Power (Clinical Psychologist) are supervising me within NHS Tayside. I am also

being supervised by Dr Matthias Schwannauer (Clinical Psychologist) at the University of Edinburgh.

Who has reviewed this study?

Before any research goes ahead, it has to be checked by a Research Ethics Committee. They make sure that the research is fair and ethical. The East of Scotland Research Ethics Committee REC 2 has checked and approved this study. The University of Edinburgh and NHS Tayside may also review participant records to check that we are carrying out the research properly and that we are protecting your rights at all times.

I have questions/concerns about the study – what should I do?

If you have any questions or concerns about the study, you can contact me on the details above. If you would like to speak to someone who is not involved with the study, you can contact: Dr Sheenagh MacDonald, Consultant Clinical Psychologist, on 01382 346565.

If any problems arise during this study and you would like to make a complaint, you can do this though:

Patient Liaison Manager
Complaints office
Ninewells Hospital
Dundee
DD1 9SY
Telephone: 0800 027 5507

Please keep hold of this sheet and have a think about whether you are willing to consent to your child taking part in this study. If you have any questions about the study, please do not hesitate to contact either myself or the member of staff who invited your child to take part.

If you consent to your child taking part in this study, could you please make us aware of this by completing the attached consent form and giving it back to us at your child's next appointment.

Many thanks for your time,

Caroline Smith
Trainee Clinical Psychologist

Appendix 9 Opt-in Slip

Opt-in Slip

Version 2 (08.08.13)



Title of Project:

Factors affecting mental health in young people

Researcher:

Caroline Smith

If you would like to opt in to participate in the above study which is outlined in the Participant Information Sheet (included herewith), please either:

i) Let your clinician know at your next appointment

or

ii) Contact the researcher directly, details below:

Caroline Smith
Trainee Clinical Psychologist
Centre for Child Health
19 Dudhope Terrace
Dundee
DD3 6HH
Tel: 01382 346565
Email: casmith@nhs.net

Appendix 10 Participant & Parent Consent Forms

Consent Form

Version 4 (08/08/13)



CONSENT FORM

Factors affecting mental health in young people



Please initial the boxes below.

I confirm that I have read and understand the participant information sheet dated 08/08/13 (Version 6) for the above study.

☐

I understand what is being asked of me and I have had the opportunity to ask questions.

☐

I understand that my participation is voluntary and that I am free to withdraw at any time, without my care within the NHS being affected.

☐

I understand that the information obtained from all measures that I complete as part of the research study will be anonymised.

☐

I understand that my GP will be informed that I have consented to take part in the study.

☐

I understand that relevant parts of my medical notes and data collected during the study may be looked at by individuals from the Sponsor or from the NHS board. I give permission for these individuals to have access to my records.

☐

I agree to take part in the above study.

☐

Name of participant

Date

Signature

Name of
Person Taking Consent

Date

Signature

If you would like to receive feedback regarding the outcome of the study, please tick the box below and provide either a valid email address or postal address.

☐

Contact address:

Original (x1) to be retained in site file. Copy (x1) retained in patient notes. Copy (x1) retained by participant.



PARENT/ GUARDIAN CONSENT FORM

Factors affecting mental health in young people



Please initial the boxes below.

I confirm that I have read and understand the Parent Information Sheet dated 08/08/13 (Version 5) for the above study.

☐

I understand what is being asked of my child and I have had the opportunity to ask questions.

☐

I understand that my child's participation is voluntary and that he/she is free to withdraw at any time, without their care within the NHS being affected.

☐

I understand that the information obtained from all measures that my child completes as part of the research study will be anonymised.

☐

I understand that my child's GP will be informed that he/she has consented to take part in the study.

☐

I understand that relevant part of my child's medical notes and data collected during the study may be looked at by individuals from the Sponsor or from the NHS board. I give permission for these individuals to have access to my child's records.

☐

I agree to my child taking part in the above study.

☐

Name of Participant

Name of parent/guardian

Date

Signature

Name of
Person Taking Consent

Date

Signature

If you would like to receive feedback regarding the outcome of the study, please tick the box and provide either a valid email address or postal address.

☐

Contact address:

Original (x1) to be retained in site file. Copy (x1) retained in patient notes. Copy (x1) retained by participant.